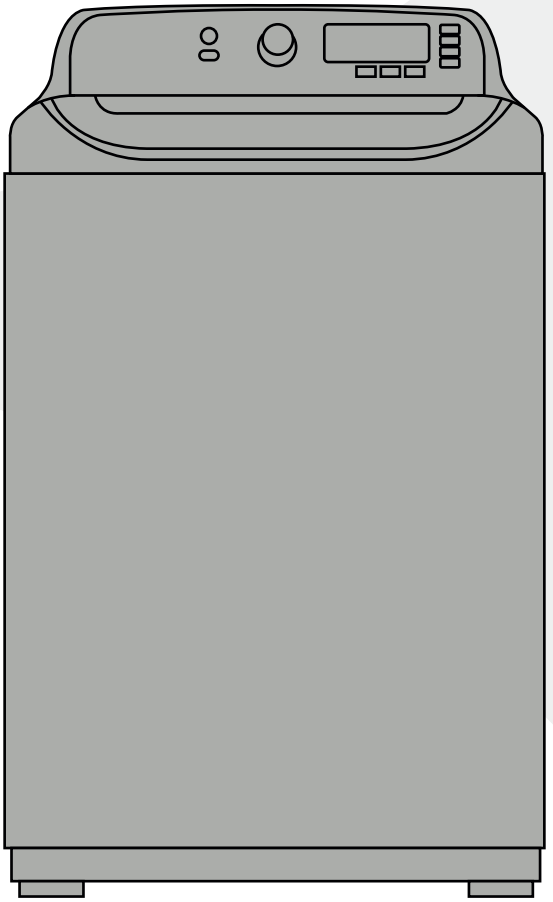
FRIGIDAIRE

Technical Service Manual, Top Load Washer

MODEL FFTW4120SW



Publication # 5995693107 March 2018

Table of Contents

Important Safety Instructions 4
Safe Servicing Practices for All Appliances 4
Safety Precautions 5
Warnings 5
Fire Hazard 5
Electrical Shock Hazard 5
Before Servicing 5
After Testing 5
After Repairing 5
Grounding Instructions 6
Electrostatic Discharge (ESD) 6
Precautions 6
Product Information 7
Model Layout 7
Specifications 8
Installation Requirements 9
Electrical system requirements 9
Ground requirements 9
Water supply requirements 9
Drain system requirements 9
Installation in a Recess or Closet 10
Clearance requirements 10
Washer Dimensions 11
Leveling your washer 11
Connecting inlet water 11
Connecting drain hose to washer 12
Connecting drain and electrical 12
Removal and Replacement of Parts 14
Control Panel Assembly 14
Control Panel Assembly 14
Control/display Board 14
Water Level Sensor 15
Water Inlet Valve 15
Impact Switch 16
Lock Assembly 16
Top Cover Assembly 16
Lid Lock 16
Magnetic Switch 17
Main PCB 17
Electrical Box 17
Main PCB Board 18
Clutch Body Assembly 18
Belt Slip Issue 20
Phase 1: Option 1 - Only Belt Replacement 20
Phase 1: Option 2 - Pulley and Belt Replacement 20
Phase 2.5: Only Belt Replacement 21
Retractor 21
Motor 21
Drain Pump 22
Suspension Rod and Spring Assembly 22
Function & Operation 23
Controls and Functions 23
Cycles and Settings 24
Dispenser Compartments 25
Troubleshooting 26
Access Test Mode 26
Test Modes 26
Fault Codes and Corrective Actions 27
Troubleshooting 28
Water Fill Time Exceeds 60 Minutes (E1) 29
Water Drainage Time Exceeds 10 Minutes (E2) 30
Lid Open (E3) 30
Out of Balance (E4) 31
Water Level Sensor Failure (F8) 31
Lid Lock Failure (Fd) 32
Water Leakage 32
Electrical Diagrams 33
Wiring Diagram 33
Terminals 34
Port Definitions 34

Important Safety Instructions

Safe Servicing Practices for All Appliances

Avoid personal injury and/or property damage by observing important Safe Servicing Practices.

Following are some limited examples of safe practices:

1. DO NOT attempt a product repair if you have any doubts as to your ability to complete the repair in a safe and satisfactory man ner.
2. DO NOT exceed maximum recommended wattage on light bulb replacements. Doing so could blow fuses and/or damage transformers.
3. Before servicing or moving an appliance:

   Remove power cord from the electrical outlet, trip circuit breaker to the OFF position, or remove fuse.

   Turn off water supply if applicable.

   Turn off gas supply if applicable.
4. Never interfere with the proper operation of any safety device.
5. Use ONLY REPLACEMENT PARTS CATALOGED FOR THIS APPLIANCE. Substitutions may defeat compliance with safety standards set for home appliances.
6. GROUNDING: The standard color coding for safety ground wires is GREEN, or GREEN with YELLOW STRIPES. Ground leads are not to be used as current carrying conductors. It is EXTREMELY important that the service technician reestablish all safety gro unds prior to completion of service. Failure to do so will create a hazard.
7. Prior to returning the product to service, ensure that:

   All electrical connections are correct and secure.

   All electrical leads are properly dressed and secured away from sharp edges, high-temperature components, or moving parts.

   All non-insulated electrical terminals, connectors, heaters, etc. are adequately spaced away from all metal parts and panels.

   All safety grounds (both internal and external) are correctly and securely connected. All panels are properly and securely reas - sembled.

   All mounting hardware, mounting brackets, and anti-tip devices are properly installed and engaged.

ATTENTION	This service manual is intended for use by persons having electrical and mechanical training and a level of knowledge of these subjects generally considered acceptable in the appliance repair trade. Electrolux Home Products, Inc. cannot be responsible, nor assume any liability, for injury or damage of any kind arising from the use of this manual.

Service Tips - Develop Good Work Habits

Consistently following a standard routine when servicing appliances will insure that you do not waste time searching for a comp lex solution to a simple problem. One of the most common mistakes made by service technicians is failing to verify the incoming pow er supply to the appliance.

Many times electronic controls and other components are replaced unnecessarily because the incoming power supply was not verifi ed. When testing the electrical supply, the test should be performed at the terminal block where the power cord or house wiring att aches to the appliance. Verify that there are 240 volts between L1 & L2 and that there is 120 volts from L1 to Neutral and also from L2 to Neutral. You should also check the power supply while the appliance is operating or “under load”. The power supply may show good with th e product sitting idle but fail when certain components are turned on. This can be caused by a weak connection in the customer’s house wiring, or a faulty circuit breaker or fuse.

Another common mistake is failure to verify all component part wire harness connections. It is essential that all component con nections are checked visually and with the appropriate circuit tester. Many times components are assumed to be faulty because they do no t operate or there is an error code displayed by the electronic control system. Often the failure is caused by a loose or miswire d connection which can cause the same error code as a defective component part. Newly installed appliances may have loose connections resulting from shipping and handling conditions or improper installation. Check the wiring connections before you order replace ment parts.

When the repair has been completed, the product should be thoroughly tested to verify that the service corrected the problem an d that all of the other features and functions of the product are in proper working order. The extra time taken to do this will create consumer confidence in your efficiency and professionalism as well as possibly saving an expensive callback.

© 2018 Electrolux Home Products, Inc.

Important Safety Instructions

Safety Precautions

Do not attempt to install, operate or service the unit until you have read the safety precautions in this manual. Safety items throughout this manual are labeled with a Warning, or Caution based on the risk type.

Definitions

WARNING	POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED COULD RESULT IN DEATH OR SERIOUS INJURY.
CAUTION	POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY.
IMPORTANT	INSTALLATION, OPERATION OR MAINTENANCE INFORMATION WHICH IS IMPORTANT BUT NOT HAZARD RELATED.

Warnings

WARNING	TO CHECK IF THE ANTI-TIP BRACKET IS INSTALLED PROPERLY, TRY TO TILT UNIT FORWARD HOLDING THE REAR EDGE. IF PROPERLY INSTALLED, THE UNIT SHOULD NOT TILT FORWARD. REFER TO THE ANTI-TIP BRACKET INSTALLATION INSTRUCTIONS FOR PROPER INSTALLATION.
TIP OVER HAZARD WARNING	1. A child or adult can tip the unit and be killed. 2. Verify the anti-tip device has been installed to floor or wall. 3. Ensure the anti-tip device is re-engaged to floor or wall when the unit is moved. 4. Do not operate the unit without the anti-tip device in place and engaged. 5. Failure to follow may result in death or serious burns to children and adults.

Fire Hazard

FIRE HAZARD WARNING	DO NOT OBSTRUCT THE FLOW OF AIR VENTILATION. DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE LIQUIDS NEAR THE APPLIANCE. READ PRODUCT LABELS FOR WARNINGS REGARDING FLAMMABILITY AND OTHER HAZARDS. DO NOT SERVICE THE APPLIANCE IN THE PRESENCE OF EXPLOSIVE FUMES.

Electrical Shock Hazard

ELECTRIC SHOCK WARNING	ENSURE THAT THE ELECTRICAL INSTALLATION IS ADEQUATE AND IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE, ANSI/NFPA 70—LATEST EDITION, AND WITH ALL LOCAL CODES AND ORDINANCES. FAILURE TO DO SO COULD RESULT IN FIRE, ELECTRICAL SHOCK, OR OTHER PERSONAL INJURY.

Before Servicing

1. Disconnect the power supply cord, and then open the unit.
2. Whenever troubleshooting is performed, the power supply must be disconnected. It may be necessary to connect the power supply after the unit is opened, in this event:

   Disconnect the power supply cord and then open the unit for servicing.

   Ensure that the leads remain isolated from other components and the unit chassis by using insulation tape.

   After that, reconnect the power supply cord.

After Testing

1. Disconnect the power supply cord, and then open the unit.
2. Reconnect the leads.
3. Reassemble the unit.
4. Reconnect the power supply cord.
5. Run the unit and check all functions.

After Repairing

1. Reconnect all the leads removed from components during testing. Reassemble the unit.
2. Reconnect the power supply cord. Run the unit and check all functions.
3. Before performing servicing procedure, test all the connections to the component.

NOTE	Ensure that all mounting hardware, mounting brackets, and anti-tip devices are properly installed and engaged.

Important Safety Instructions

Grounding Instructions

Electric Models with No Factory-supplied Power Cord

(USA electric, international, etc)

Avoid fire hazard or electrical shock. Failure to follow this warning may cause serious injury, fire, or death.

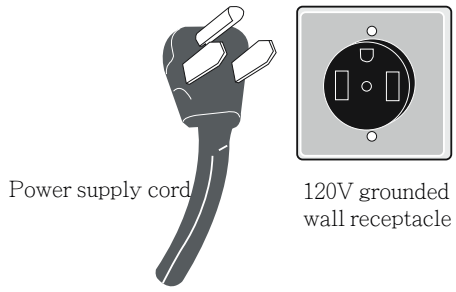
For personal safety, this appliance must be properly grounded. For maximum safety, the power cord must be plugged into an electrical outlet that is the correct voltage, is correctly polarized and properly grounded in accordance with local codes. Is the personal responsibility of the consumer to have the appropriate outlet with the correct, properly grounded wall receptacle installed by a qualified electrician. It is the responsibility and obligation of the consumer to contact a qualified installer to assure that the electrical installation is adequate and is in conformance with all local codes and ordinances.

See the installation instructions packaged with this appliance for complete installation and grounding instructions.

Canadian Electric Models

For models factory-equipped with a power cord: Avoid fire hazard or electrical shock. Failure to follow this warning may cause serious injury, fire, or death.

For personal safety, this appliance must be properly grounded. For maximum safety, the power cord must be plugged into an electrical outlet that is the correct voltage, is correctly polarized and properly grounded in accordance with local codes.



It is the personal responsibility of the consumer to have the appropriate outlet with the correct, properly grounded wall receptacle installed by a qualified electrician.

See the installation instructions packaged with this appliance for complete installation and grounding instructions.

Electrostatic Discharge (ESD)

WARNING	HUMAN BODY GENERATES ELECTRO-STATIC DISCHARGE (ESD). WHEN IT COMES IN CONTACT WITH THE TEST UNIT, THE CURRENT DISSIPATES THROUGH IT. HUMAN TOUCH IS SENSITIVE ON ESD LEVELS THAT EXCEED 4,000V. HOWEVER, THE VOLTAGE LIMIT IN WHICH THE PCB GETS DAMAGED IS GENERALLY 3.3 TO 30V. IF THE ELECTROSTATIC DISCHARGE POSSESSES SUFFICIENT ENERGY, DAMAGE COULD OCCUR IN THE DEVICE DUE TO LOCALIZED OVER-HEATING THAT MAY OR MAY NOT BE VISIBLE TO HUMAN EYE.

The circuit boards and all the wire connectors to be connected on the boards are ESD sensitive. Take the following precautions when servicing or handling the circuit boards and wire connectors.

Precautions

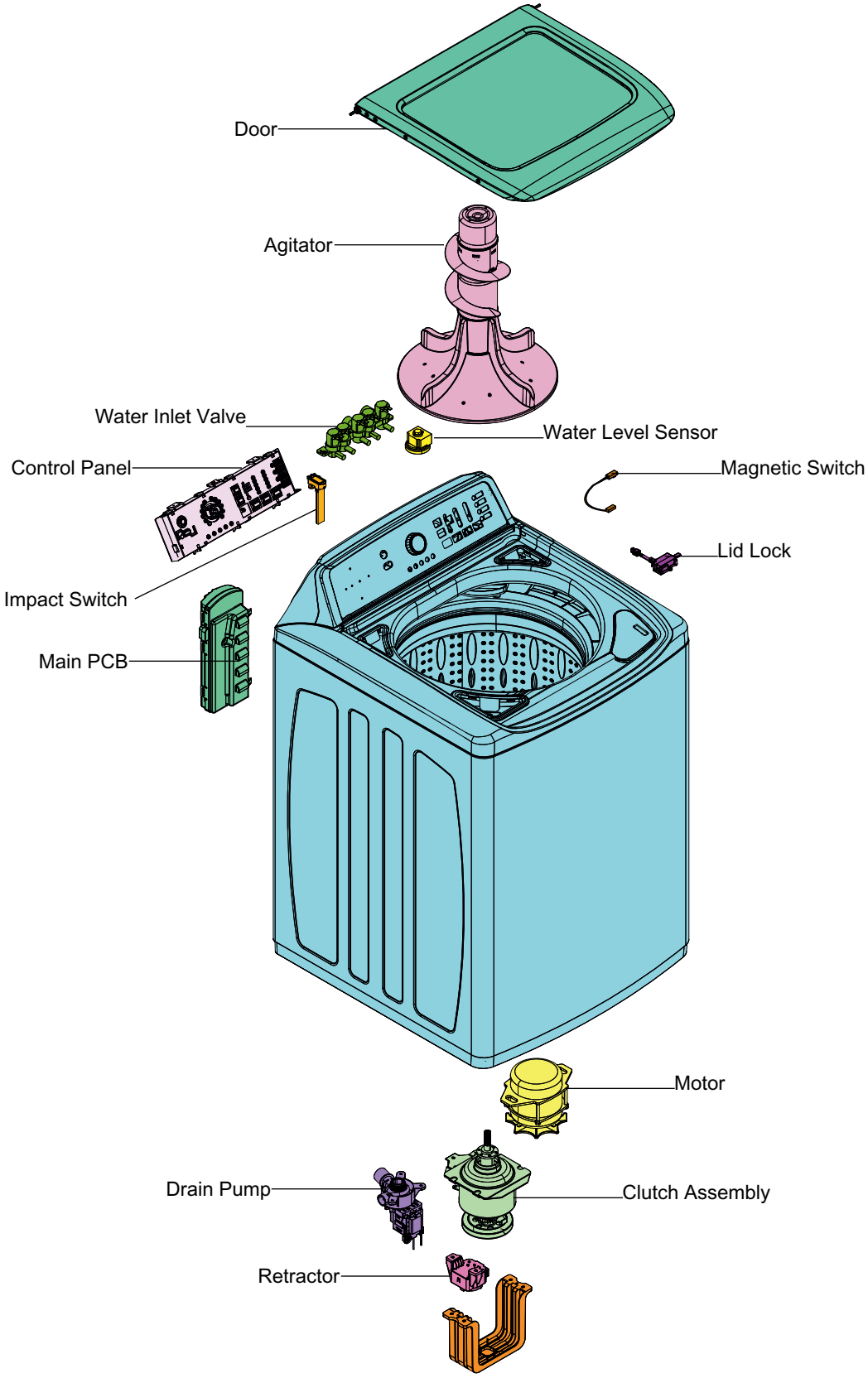
- Use appropriate personal grounding equipment such as wrist straps.
- Connect the wrist straps properly with the grounding source.
- The parts to be replaced must remain fully enclosed within ESD packs until assembled.
- Allow only trained or escorted people in the servicing area.
- Visually check all the grounding cords.
- Use shielded packaging for shipping or storing ESD sensitive items outside the servicing area.
- Handle unpacked ESD sensitive items only when grounded.
- Do not drag test equipment as it might develop ESD.

To move ESD sensitive parts or assemblies inside a servicing area, use one of the following:

- Static dissipative containers
- Static shielding containers
- Conductive containers or board carriers.

Product Information

Model Layout



Product Information

Specifications

Power supply	120V/60hz
Capacity (cu ft)	4.1
IMEF (cu ft/kWh/cycle)	1.57
IWF (gallons/cycle/cu ft)	6.5
Energy star, 2015	No
Certification, safety	CSA
Agitator type	Agitator
Input power (Watts)	600W
Cycle selection	12
Cycles	Normal, Whites, Heavy Duty, Sports, Bulky, Colors, Quick Wash, Delicate, Hand wash, Drain & Spin, Tub Clean, Rinse & Spin
Options	Favorite, Eco Wash, Soak, Delay, Signal On/Off, Fabric Softener
Water level control	Auto
Water level selection	Auto
Temperature selection	5
Soil level selection	5
Maximum spin speed	680
Digital display	Yes
Cycle status lights	Yes
Remaining time display	Yes
Look through lid	Yes
End of cycle signal	Yes
Delay start	Yes, up to 24 hours
Memory of power interrupt	Yes
Magic filter	No
Adjustable leg	Yes, 2
Detergent dispenser	Detergent, Bleach, Softener
Portable roller	No
Color	White
Part material	
Control panel	ABS
Top lid	Glass
Agitator	PP
Inner tub	Stainless steel
Cabinet	Painted steel
Basement	PP
Special features	
Control lock	Yes
Lid switch, magnetism	Yes
Lid lock	Yes
Error alarm	Yes
Auto unbalancing detection	Yes
Auto-power off	Yes
Closed rat-proof base	No
Noise (dB)	73
Dimensions & loading	
Width, body, Inch	27
Depth, body, Inch	29
Height, body, Inch	44 1/8
Width, body, mm	686
Depth, body, mm	736
Height, body	1100
Width, package, Inch	29 1/8
Depth, package, Inch	30 5/16
Height, package, Inch	47 1/4
Width, package, mm	729
Depth, package, mm	761
Height, package, mm	1170
Net, lbs	143.2
Gross, lbs	160.8
Net, Kg	63.5
Gross, Kg	71.5

Product Information

Installation Requirements

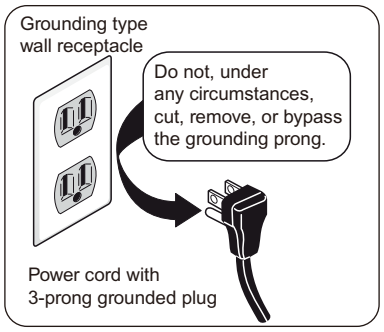
Electrical system requirements

CIRCUIT - Individual, properly polarized and grounded 15 amp. branch circuit fused with 15 amp. time delay fuse or circuit breaker.

POWER SUPPLY - 2 wire, with ground, 120 volt single phase, 60 Hz, Alternating Current.

NOTE	BECAUSE OF POTENTIALLY INCONSISTENT VOLTAGE CAPABILITIES, THE USE OF THIS WASHER WITH POWER CREATED BY GAS POWERED GENERATORS, SOLAR POWERED GENERATORS, WIND POWERED GENERATORS OR ANY OTHER GENERATOR OTHER THAN THE LOCAL UTILITY COMPANY IS NOT RECOMMENDED.

OUTLET RECEPTACLE - Properly grounded 3-prong receptacle to be located so the power supply cord is accessible when the washer is in an installed position.



NOTE	GFI (GROUND FAULT INTERRUPTER) RECEPTACLE IS NOT REQUIRED.

Ground requirements

WARNING	ELECTRICAL SHOCK HAZARD IMPROPER CONNECTION OF THE EQUIPMENT GROUNDING CONDUCTOR CAN RESULT IN A RISK OF ELECTRICAL SHOCK. CHECK WITH A LICENSED ELECTRICIAN IF YOU ARE IN DOUBT AS TO WHETHER THE APPLIANCE IS PROPERLY GROUNDED.

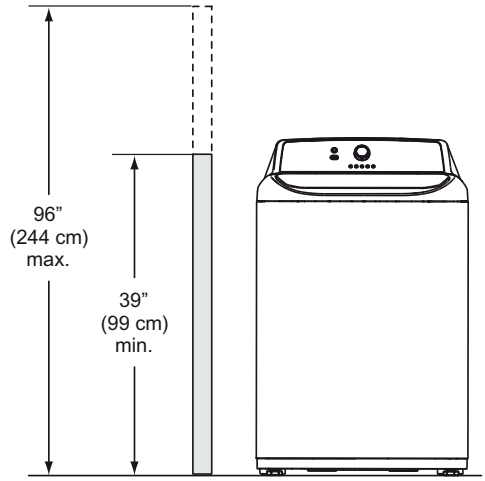
1. The washer MUST be grounded. In the event of malfunction or breakdown, grounding will reduce the risk of electrical shock by a path of least resistance for electrical current.
2. Since your washer is equipped with a power supply cord having an equipment-grounding conductor and a grounding plug, the plug MUST be plugged into an appropriate, copper wired receptacle that is properly installed and grounded in accordance with all local codes and ordinances or in the absence of local codes, with the National Electrical Codes, ANSI/NFPA 70 (latest edition). If in doubt, call a licensed electrician. DO NOT cut off or alter the grounding prong on the power supply cord. In situations where a two-slot receptacle is present, it is the owner's responsibility to have a licensed electrician replace it with a properly grounded three prong grounding type receptacle.

Water supply requirements

Hot and cold water faucets MUST be 3/4 inch with threading for laundry hose connection. Water pressure MUST be between 30 and 116 psi. Pressure difference between hot and cold cannot be more than 10 psi. Your water department can advise you of your water pressure.

Drain system requirements

1. Drain capable of eliminating 17 gals (64.3 L) per minute.
2. A standpipe diameter of 1-1/4 in. (3.18 cm) minimum.
3. The standpipe height above the floor should be:
   Minimum height: 39 in. (99 cm)
   Maximum height: 96 in. (244 cm)

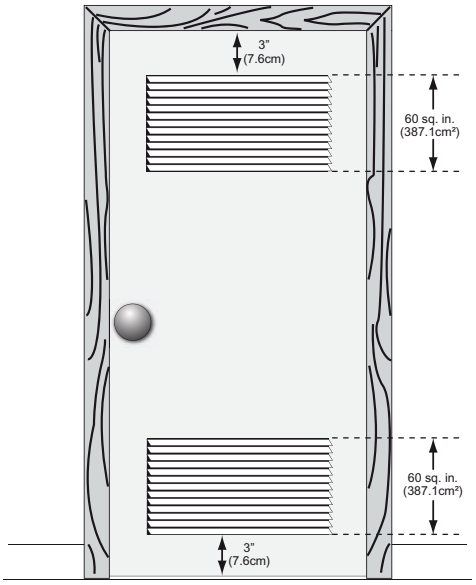


NOTE	FOR INSTALLATIONS REQUIRING A LONGER DRAIN HOSE, HAVE A QUALIFIED TECHNICIAN INSTALL A LONGER DRAIN HOSE (ACCORDING TO YOUR MODEL NUMBER) AVAILABLE FROM AN AUTHORIZED PARTS DISTRIBUTOR. FOR DRAIN SYSTEMS IN THE FLOOR, INSTALL A SYPHON BREAK KIT AVAILABLE FROM YOUR LOCAL HARDWARE STORE.

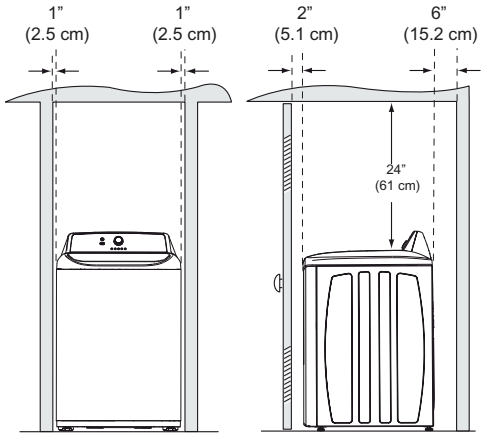
Product Information

Installation in a Recess or Closet

If washer and dryer are installed in the same closet, door ventilation is required: A minimum of 120 square inches (774.2 cm²) of opening, equally divided at the top and bottom of the door, is required. Louvered openings should be located 3 inches (7.6 cm) from bottom and top of door. Air openings are required to be unobstructed when a door is installed. A louvered door with equivalent air openings for the full length of the door is acceptable.



closet door



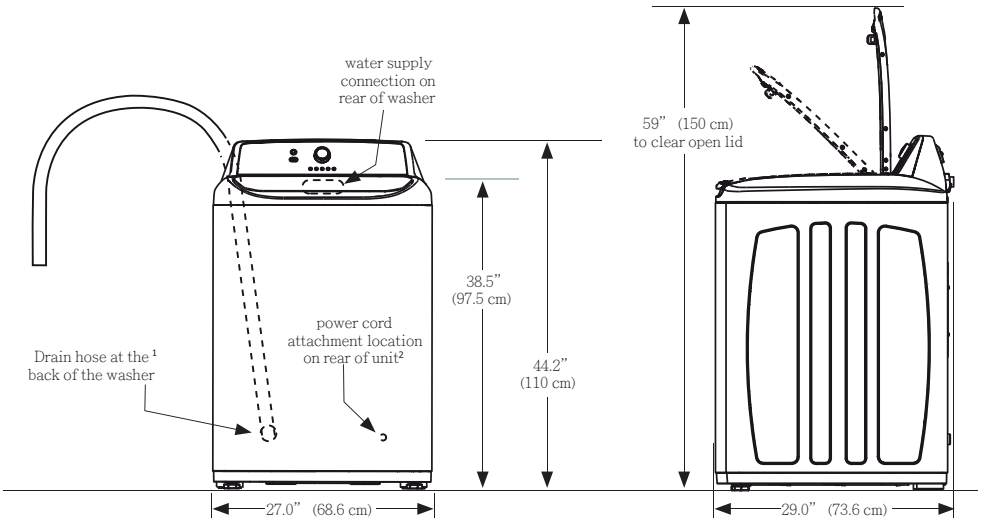
Clearance requirements

IMPORTANT	DO NOT INSTALL YOUR WASHER: 1. In an area exposed to dripping water or outside weather conditions. The ambient temperature should never be below 60° F (15.6° C) to maximize detergent effectiveness. 2. In an area (garage or garage-type building) where gasoline or other flammables (including automobiles) are kept or stored. 3. On carpet. Floor MUST be solid with a maximum slope of 1 inch (2.5 cm). To minimize vibration or movement, reinforcement of the floor may be necessary.

MINIMUM INSTALLATION CLEARANCES - Inches (cm)				
	SIDES	REAR	TOP	FRONT
Alcove	1"(2.5 cm)	6"(15.2 cm)	24" (61 cm)	n/a
Closet	1"(2.5 cm)	6"(15.2 cm)	24" (61 cm)	2"(5.1 cm)

Product Information

Washer Dimensions

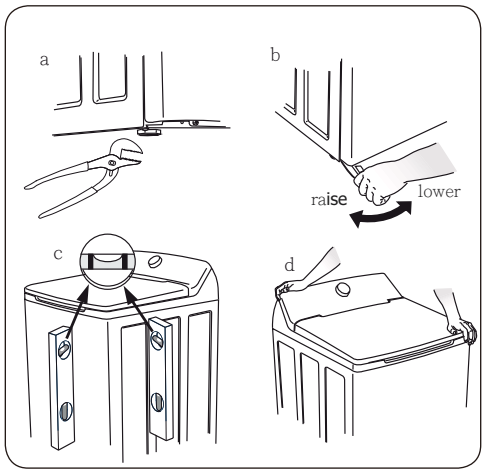


[1]Drain hose length on washer approximately 53.1 inches (135 cm).
[2]Power supply cord length approximately 72.8 inches (185 cm).

Leveling your washer

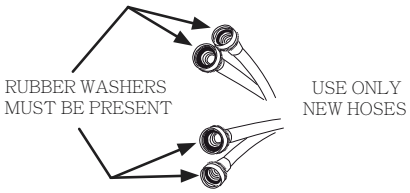
Excessive noise and vibration can be prevented by properly leveling the washer.

1. With the washer within 4 feet (1 m) of its final location, use a carpenter's level to level your washer front-to-back and side-to-side. For front-to-back leveling, place edge of the level flush to the front panel. For side-to-side leveling place the edge of the level flush to the side panel.
2. Use adjustable pliers to adjust the front leveling legs so the washer is level front-to-rear and side-to-side, and stable corner-to-corner.
3. Press down on alternate corners and sides and feel for the slightest movement. Adjust the appropriate front leg(s) so the washer sits solidly on the floor on ALL four legs. Keep the leveling leg extension at a minimum for best performance of the washer.



Connecting inlet water

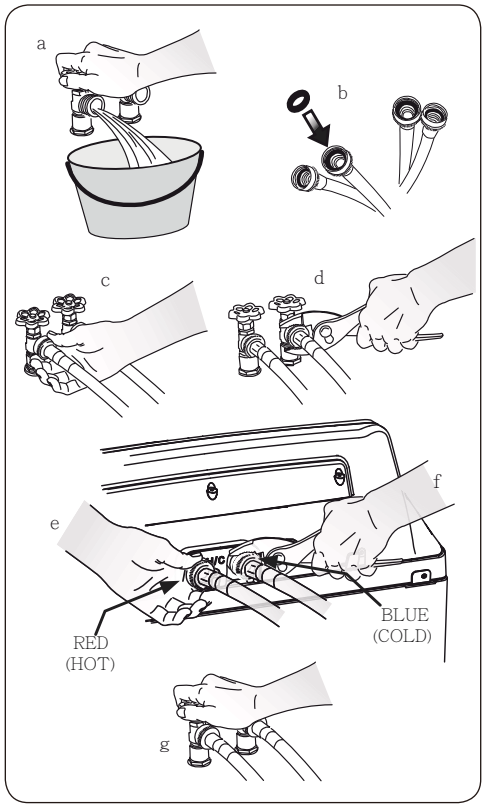
1. Run some water from the hot and cold faucets to flush the water lines and remove particles that might clog the water valve screens and to determine which faucet is hot and which is cold supply.



NOTE	HOSES ARE NOT INCLUDED WITH WASHER PURCHASE. SEE "ACCESSORIES" SECTION FOR VARIOUS INLET HOSE KITS TO FIT YOUR SPECIFIC INSTALLATION.

2. Connect the HOT inlet hose to the HOT inlet connection on the washer and the COLD inlet hose to the COLD inlet connection on the washer. Tighten by hand until snug. Then tighten each supply connection another 2/3 turn with pliers. Do not cross thread or over tighten these connections.
3. Connect the HOT inlet hose to the HOT water supply and the COLD inlet hose to the COLD water supply. Tighten by hand until snug. Then tighten each supply connection another 2/3 turn with pliers. Do not bend, kink or pinch water inlet hoses.
4. Turn on the water and check for leaks.

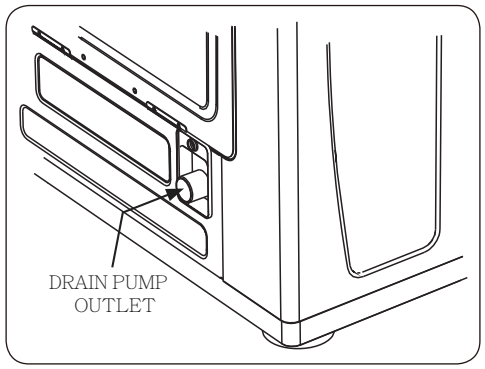
Product Information

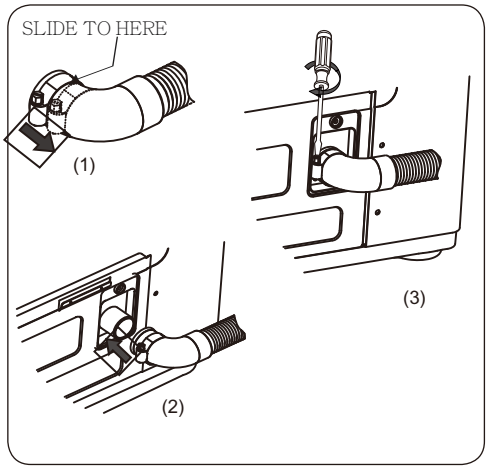


Connecting drain hose to washer

IMPORTANT	INSPECT RUBBER FLAP ON PUMP OUTLET. ENSURE IT IS IN PLACE AND NOT FOLDED UNDER OR TORN.

1. With the screw clamp already installed, place the drain hose elbow over the pump outlet at the lower rear of the washer. Ensure the hose elbow contact the bottom of the pump outlet. Move the clamp as close as possible to the pump outlet. Then screw the clamp tightly with a flat screwdriver clockwise.





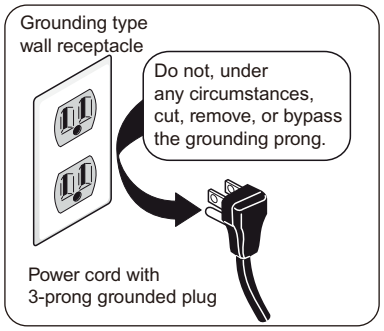
Connecting drain and electrical

1. Snap one end of the drain hose hanger (shipped in washer drum) onto the drain hose. Continue wrapping it around the hanger and snap it in place.
2. Place the hook end of the drain hose in the drain opening. Secure the drain hose with the cable tie (provided in the enclosure package) to the standpipe, inlet hose, laundry tub, etc. so the hose does not pull out from the force of the water.

NOTE	THE STANDPIPE INSIDE DIAMETER MUST BE 1-1/4" (3.2 CM) MINIMUM. THERE MUST BE AN AIR GAP AROUND THE DRAIN HOSE IN THE STANDPIPE. A SNUG HOSE FIT CAN CAUSE A SIPHONING ACTION.

IMPORTANT	CHECK TO ENSURE THE POWER IS OFF AT A CIRCUIT BREAKER/FUSE BOX BEFORE PLUGGING THE POWER CORD INTO AN OUTLET.

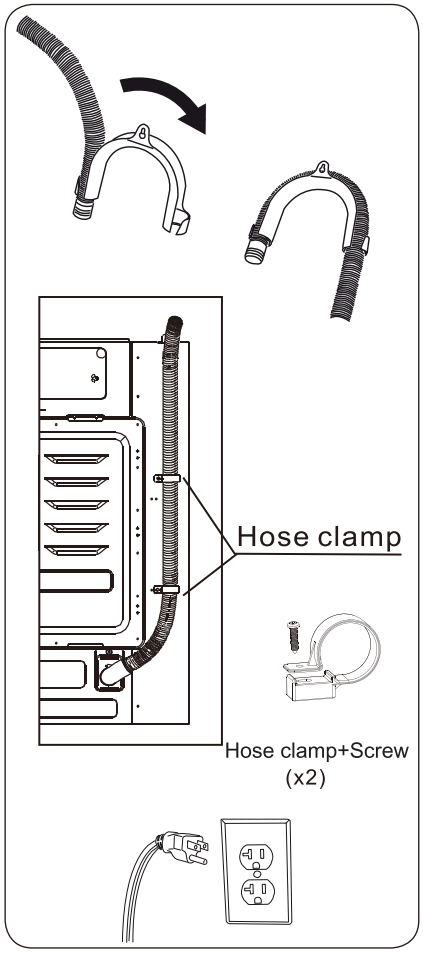
3. Plug the power cord into a grounded outlet.

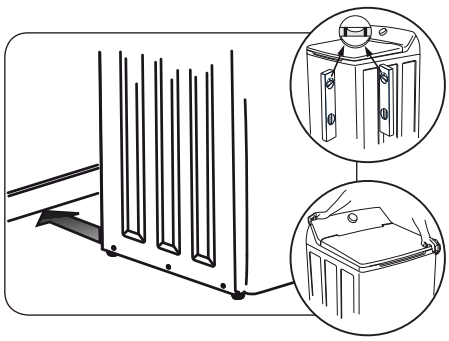


4. Turn on the power at the circuit breaker/fuse box.
5. Carefully slide the washer to its final position. Recheck for level and rock corners for stability.

Product Information

6. Read the Use & Care Guide provided with the washer. It contains valuable and helpful information that will save you time and money.
7. Run the washer through a complete cycle, checking for water leaks and proper operation.
8. If you have any questions during initial operation, please review the “Avoid Service Checklist” in your Use & Care Guide before calling for service.
9. Place these instructions in a location near the appliance for future reference.





Removal and Replacement of Parts

NOTE	TO REINSTALL OR REPLACE PARTS, REVERSE THE REMOVAL PROCEDURES IN PROPER ORDER.

Control Panel Assembly

The control panel assembly consists of the user interface panel and knob on the front side, and control/display board on the rear side. The water inlet valve, water level sensor, and impact switch can be accessed only after removing the control panel assembly.

Control Panel Assembly

1. Turn off electrical supply.
2. Gently pull the knob out. See Figure 1.
3. Remove the 3 screws using a Phillips-head screw driver at the rear side of the control panel assembly. See Figure 1.
4. Lift the control panel assembly from rear side as shown in Figure 2.

Figure 1

Figure 2

Control/display Board

1. Disconnect the wire connected to the control/display board. See Figure 3.
2. Remove the 3 screws on the board housing, using a Phillips-head screw driver. See Figure 3.
3. Open the snaps using a flat-head screwdriver and take the control/display board assembly out. See Figure 4.
4. Remove the 3 screws mounting the board on the housing, using a Phillips-head screw driver. See Figure 4.
5. Open the snaps using a flat-head screwdriver and take the control/display board out. See Figure 4.

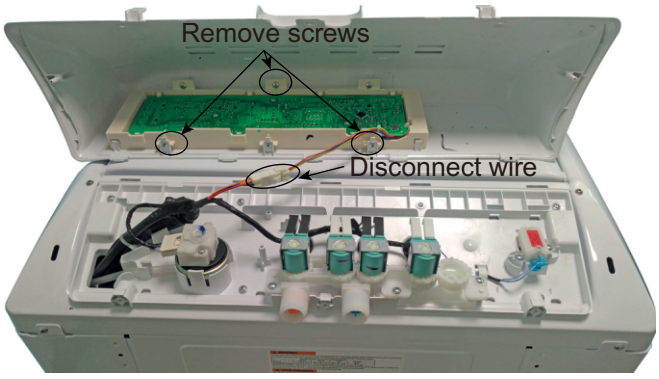


Figure 3

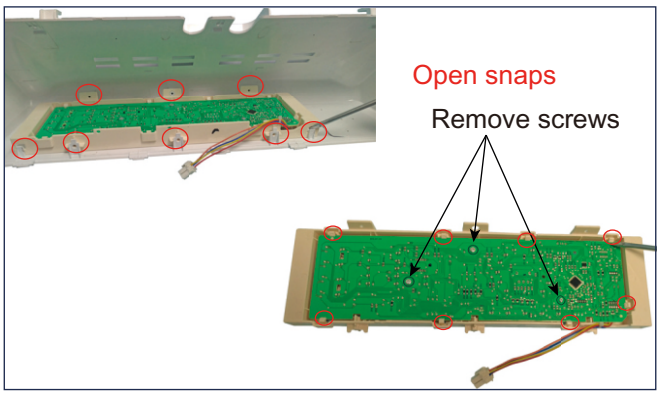


Figure 4

Removal and Replacement of Parts

Water Level Sensor

1. Turn off electrical supply.
2. Remove control panel assembly. See section Control Panel Assembly.
3. Open the snaps using a flat-head screwdriver and remove the water level sensor. See Figure 6.
4. Disconnect the wire connected to the water level sensor.
5. Remove the pipe connected to the water level sensor.

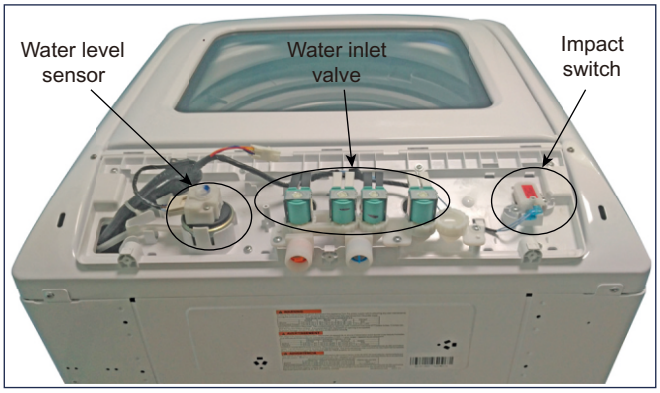


Figure 5

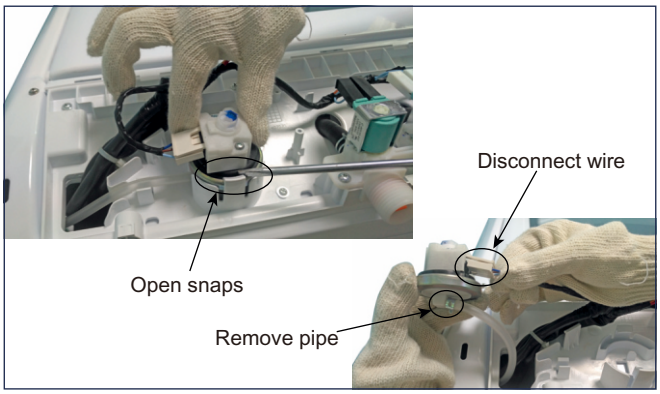


Figure 6

Water Inlet Valve

1. Turn off electrical supply.
2. Remove control panel assembly. See section Control Panel Assembly.
3. Mark and disconnect all the wires connected to water inlet valve and impact switch. See Figure 7.
4. Remove the 3 screws mounting the water inlet valve using a Phillips-head screwdriver. See Figure 8.
5. Remove all the 4 hoses connected to the water inlet valve. Open the clips using the needle nose pliers. See Figure 8.

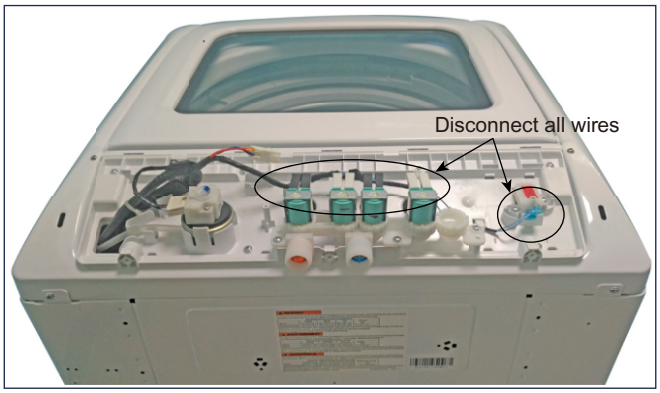


Figure 7

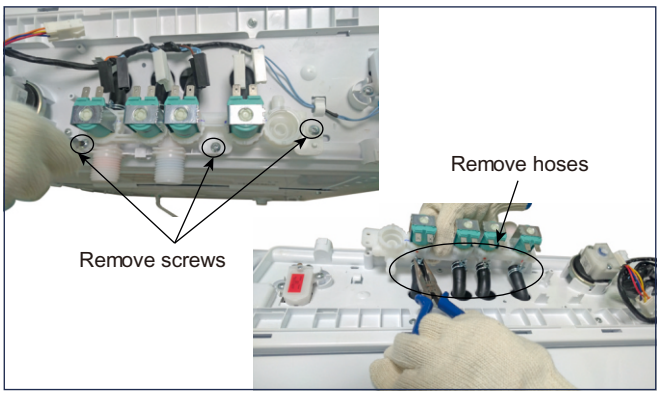


Figure 8

Removal and Replacement of Parts

Impact Switch

1. Turn off electrical supply.
2. Remove control panel assembly. See section Control Panel Assembly.
3. Remove the 2 screws mounting the impact switch, using a Phillips-head screwdriver and take the impact switch out. See Figure 9.
4. Disconnect all the wires connected to the impact switch. See Figure 9.

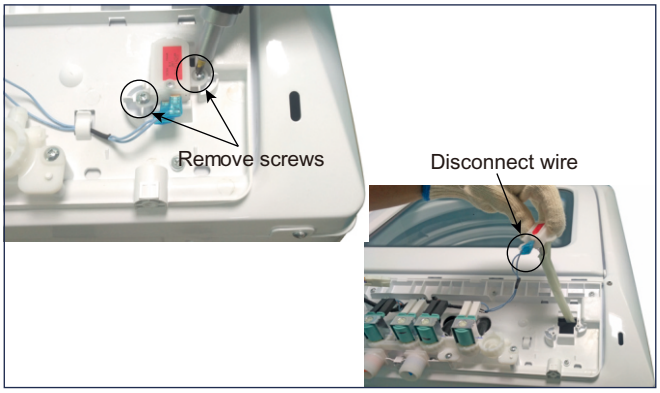


Figure 9

Lock Assembly

Top Cover Assembly

1. Turn off electrical supply.
2. Remove Impact Switch. See section Imapct Switch.
3. Remove the 2 screws mounting the top cover assembly using a Phillips-head screwdriver and slightly push the top cover assembly forward as shown in Figure 10.
4. Lift the top cover assembly up and make it rest on the wall. See Figure 11.

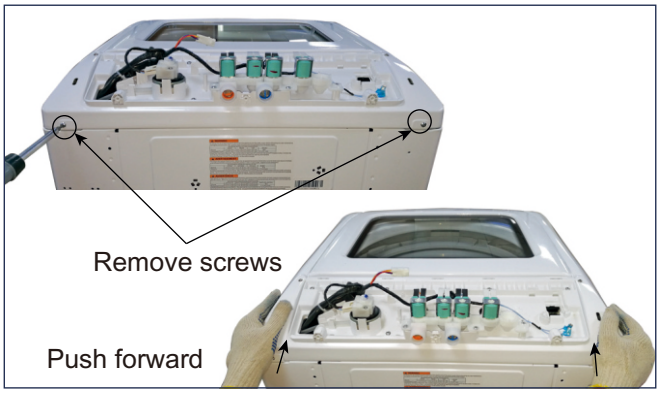


Figure 10

CAUTION	HOLD THE LID PROPERLY IN CLOSED POSITION WHEN LIFTING UP OR PLACING THE TOP COVER ASSEMBLY. SEAL THE LID WITH A TAPE IF REQUIRED.

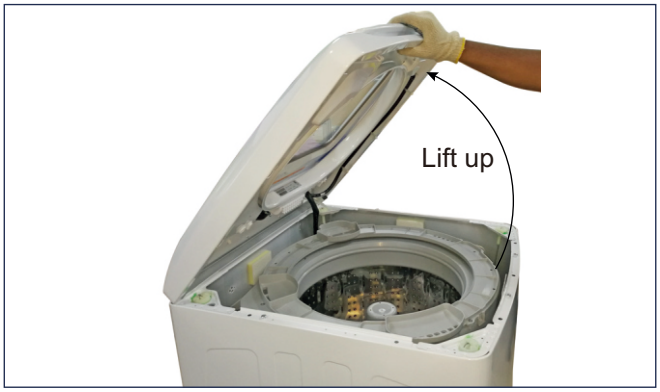


Figure 11

Lid Lock

The lid lock is located on the underside of the top cover.

1. Remove the 3 screws mounting the lock cover using a Phillips-head screwdriver and remove the lock cover. See Figure 12.

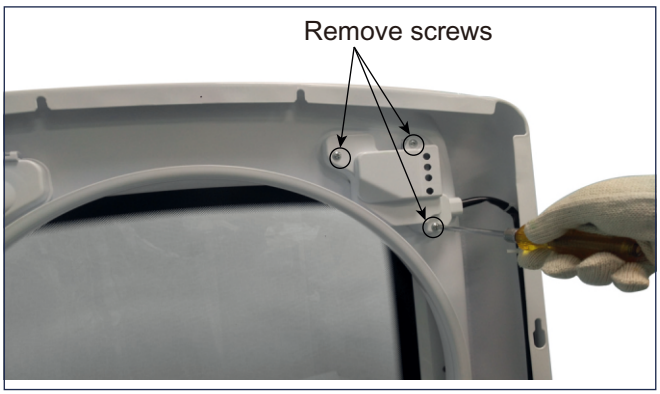


Figure 12

Removal and Replacement of Parts

2. Remove the 2 screws mounting the lid lock using a Phillips-head screwdriver. See Figure 13.
3. Disconnect the wire connected to the lid lock. See Figure 13.

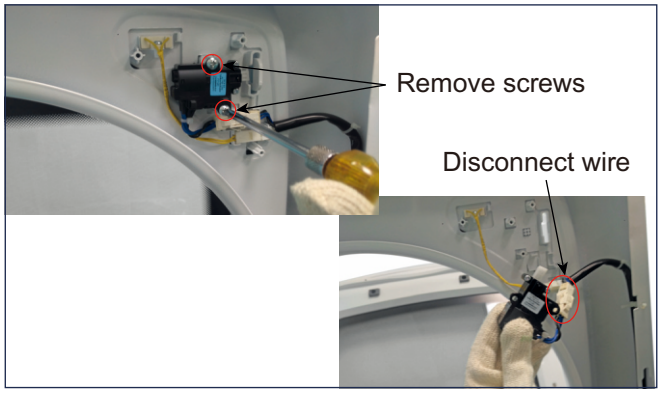


Figure 13

Magnetic Switch

1. Turn off electrical supply.
2. Remove lid lock. See section Lid Lock.
3. Disconnect the wire connected to the magnetic switch. See Figure 14.
4. Push the lid lock cover upwards. The lid lock cover is located on the upper side of the top cover.
5. Remove the screw on the magnetic switch. Refer Figure 14.

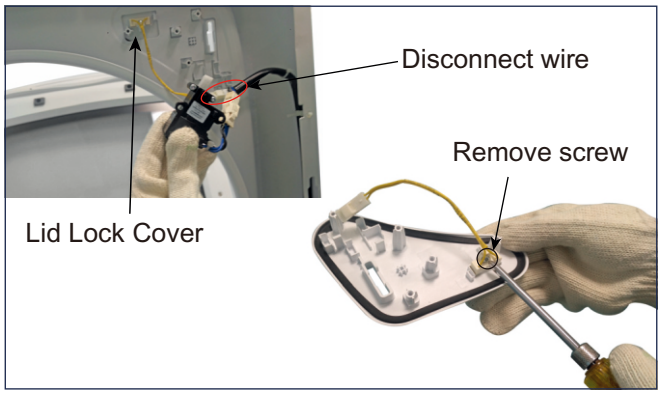


Figure 14

Main PCB

Electrical Box

1. Turn off electrical supply.
2. Remove the 6 screws on the back panel and take the back panel out. See Figure 15.

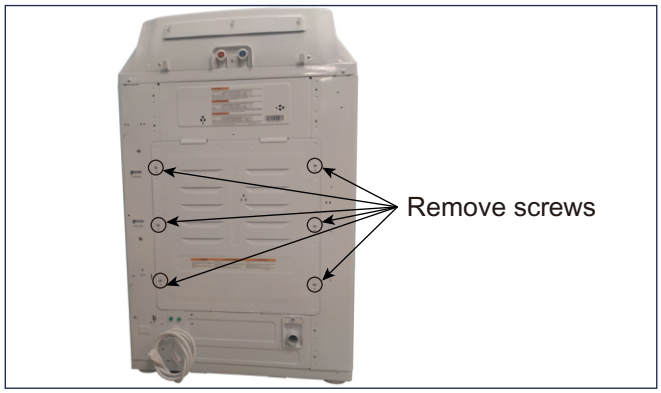


Figure 15

3. Remove the 2 screws mounting the electrical box using a Phillips-head screwdriver. See Figure 16.
4. Push the electric box slightly up to bring it out of the snaps and pull it out. See Figure 16.

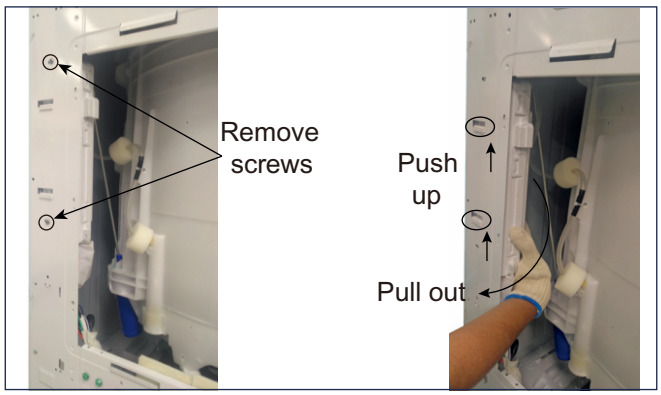


Figure 16

Removal and Replacement of Parts

5. Remove the 2 screws mounting the electrical box cover using a Phillips-head screwdriver and remove the electrical box cover. See Figure 17.

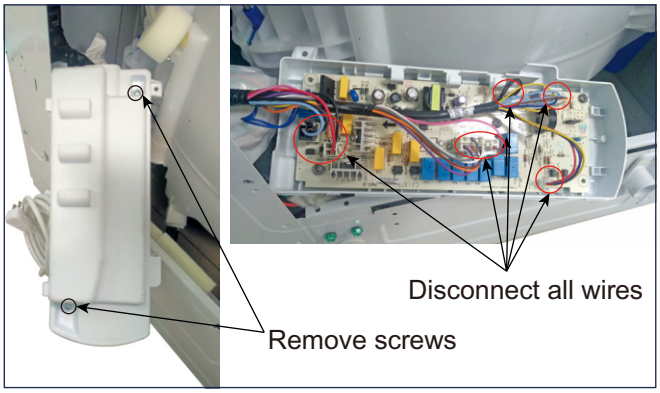


Figure 17

Main PCB Board

1. Mark and disconnect all the wires connected on the board. See Figure 17.

2. Remove the 2 screws mounting the main PCB using a Phillips-head screwdriver and remove the board. See Figure 18.

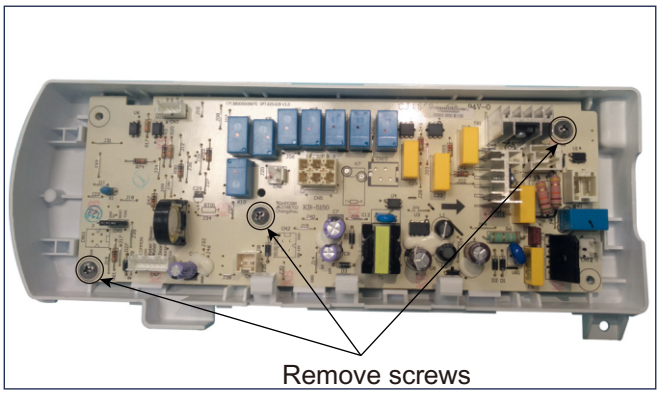


Figure 18

Clutch Body Assembly

1. Turn off electrical supply. Open the lid.
2. Remove the agitator cover. Hold the agitator cover and rotate on either side to open snaps and pull the agitator cover out. See Figure 19.

3. Remove the agitator screw using a long Phillips-head screwdriver and take the agitator out. See Figure 19.

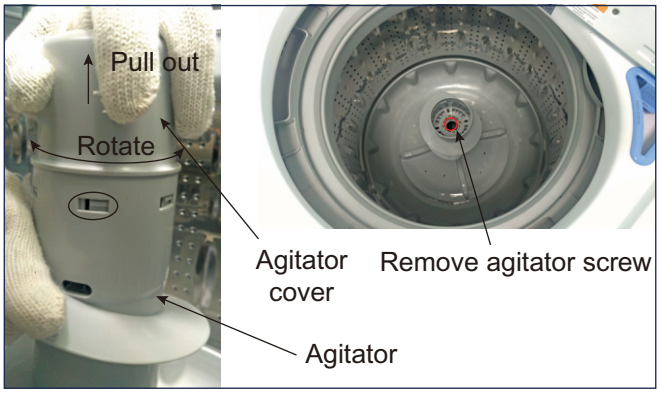


Figure 19

4. Remove 6 screws mounting the clutch using an Allen key. See Figure 20.
5. Carefully turn the washer into either left or right side and place it in a convenient servicing position to access the bottom of the washer. See Figure 21.

IMPORTANT	TAKE GOOD CARE WHEN PLACING THE WASHER SIDEWAYS TO AVOID SCRATCHES ON THE WASHER BODY. SEAL THE LID USING A TAPE TO AVOID HITTING THE LID ON THE FLOOR.

Figure 20

Removal and Replacement of Parts

6. Remove the 4 screws on the bracket and remove the bracket. See Figure 21.

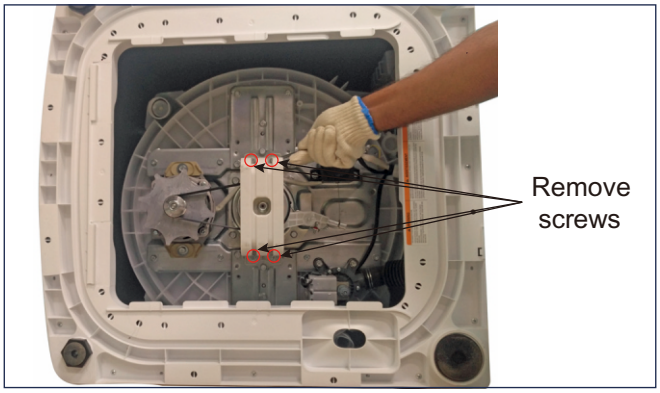


Figure 21

7. Remove the motor belt. Hold the belt, rotate the motor and pull the belt out. See Figure 22.
8. Remove the steel cord connected to the clutch and retractor. Lift the lever up. Hold the cord from bottom, rotate slightly to bring it off from the groove and pull it out. See Figure 22.

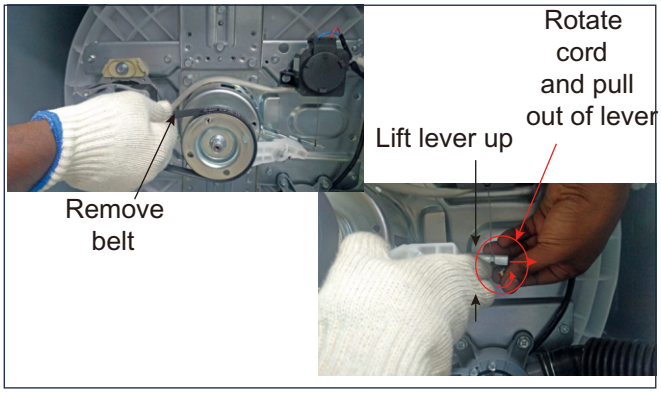


Figure 22

9. Remove the 4 bolts mounting the clutch assembly, using a wrench.
10. Gently pull out the clutch assembly. See Figure 23.

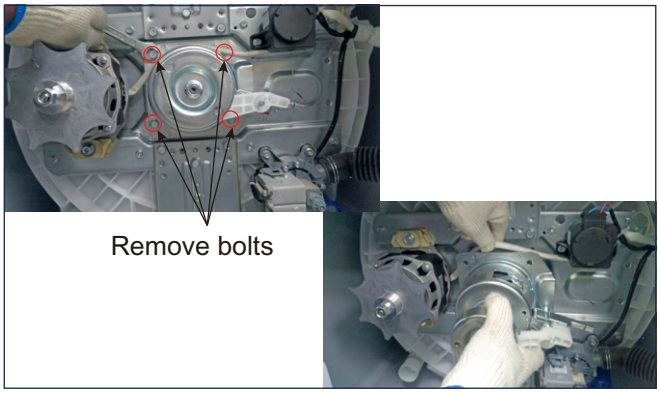


Figure 23

Removal and Replacement of Parts

Belt Slip Issue

Phase	Reliability Test Result	Service Plan	Consumer Claim
Phase 1 (Model: FFTW4120SW)	Cycles: 900~1200 cycles Degree: 2~3 years	Option 1: Replace only belt (510mm)	If claim made after 3 years
		Option 2: Replace existing parts with parts used in Phase 2.5 (pulley and belt)	If claim made within 3 years
Phase 2.5 (Model:FFTW4120SW1)	Cycles: 2000~2800 cycles Degree: 4~5 years	Replace only belt (630mm)	

Phase 1: Option 1 - Only Belt Replacement

1. Turn off electrical supply.
2. Carefully place the washer on any side, to access the bottom side, as shown in Figure 21.
3. Remove the 4 screws on the bracket and remove the bracket. See Figure 24.
4. Remove the motor belt. Hold the belt, rotate the motor and pull the belt out. See Figure 24.
5. Connect new belt (part no: 12638000000029) and mount the bracket back in place.

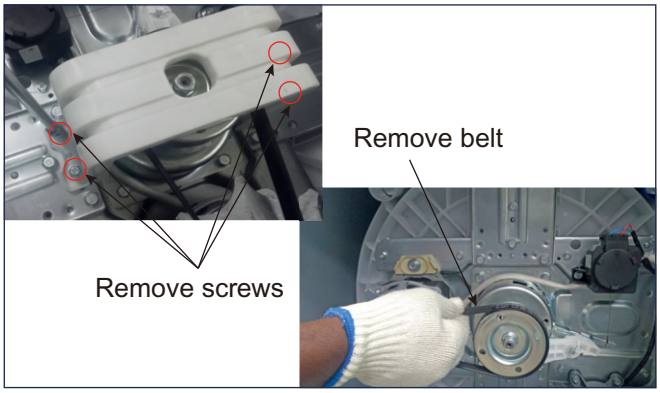


Figure 24

Phase 1: Option 2 - Pulley and Belt Replacement

1. Turn off electrical supply.
2. Carefully place the washer on any side, to access the bottom side, as shown in Figure 21.
3. Remove the 4 screws on the bracket and remove the bracket. See Figure 24.
4. Remove the motor belt. Hold the belt, rotate the motor and pull the belt out. See Figure 24.
5. Remove the nut mounting the clutch pulley, using a wrench and remove the clutch pulley. See Figure 25.
6. Remove the nut mounting the fan, using a wrench and remove the fan, nut, and the washer. See Figure 25.

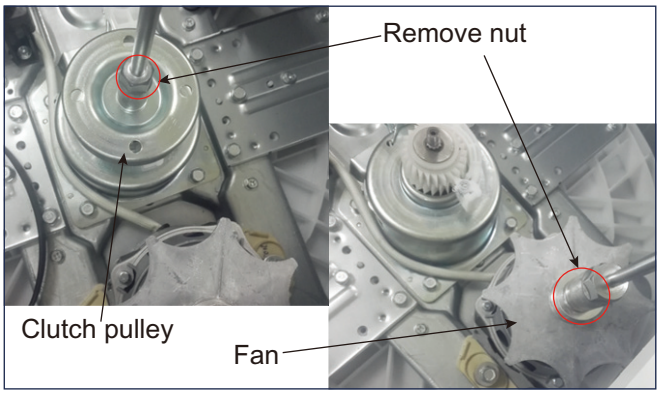


Figure 25

7. Remove the nut mounting the top insulation spacer, using a wrench and remove the top insulation spacer (part no: 12138000036963). See Figure 26.
8. Connect new top insulation spacer.
9. Connect back fan, steel pulley, and washer. See Figure 27.
10. Mount new pulley to the clutch. See Figure 27.
11. Replace old belt with new (part no: 12638000001161).
12. Mount the bracket back in place.

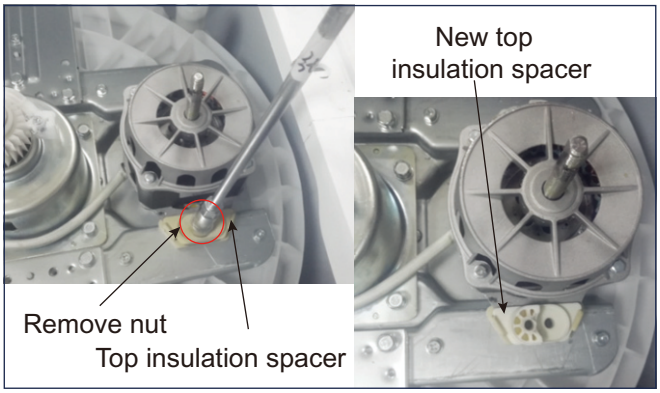


Figure 26

Removal and Replacement of Parts

Phase 2.5: Only Belt Replacement

1. Turn off electrical supply.
2. Carefully place the washer on any side, to access the bottom side, as shown in Figure 21.
3. Remove the 4 screws on the bracket and remove the bracket. See Figure 28.
4. Remove the motor belt. Hold the belt, rotate the motor and pull the belt out. See Figure 28.
5. Connect new belt (part no: 12638000001161). Mount the bracket back in place.

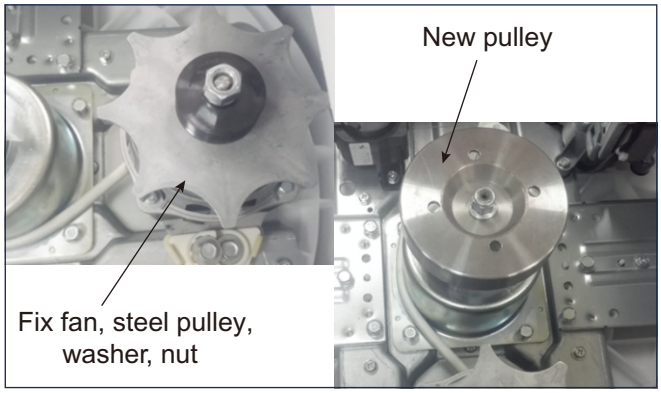


Figure 27

Retractor

1. Turn off electrical supply.
2. Carefully place the washer on any side, to access the bottom side, as shown in Figure 21.

IMPORTANT	TAKE GOOD CARE WHEN PLACING THE WASHER SIDEWAYS TO AVOID SCRATCHES ON THE WASHER BODY. SEAL THE LID USING A TAPE TO AVOID HITTING THE LID ON THE FLOOR.

3. Remove the steel cord connected to the clutch and retractor. Lift the lever up. Hold the cord from bottom, rotate slightly to bring it off from the groove and pull it out. See Figure 22.
4. Remove the 2 screws on the retractor using a Phillips-head screwdriver. See Figure 29.
5. Disconnect the wires connected to the retractor.

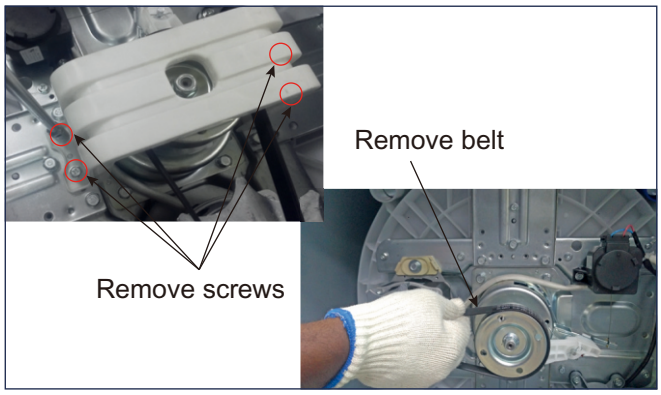


Figure 28

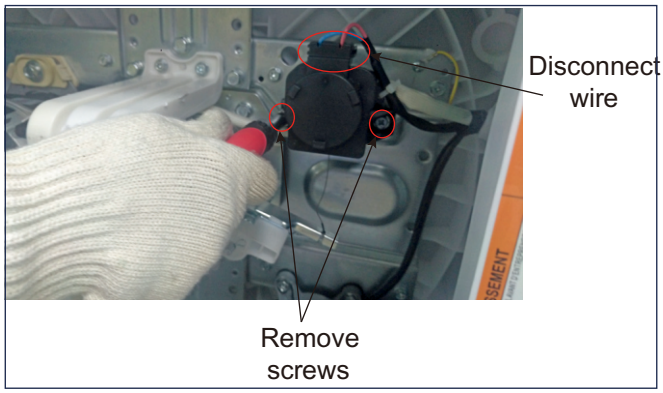


Figure 29

Motor

1. Turn off electrical supply.
2. Take out electrical box. See section Electrical Box. Disconnect the wire leading from the motor, on the main PCB.
3. Carefully place the washer on any side, to access the bottom side, as shown in Figure 21.

IMPORTANT	TAKE GOOD CARE WHEN PLACING THE WASHER SIDEWAYS TO AVOID SCRATCHES ON THE WASHER BODY. SEAL THE LID USING A TAPE TO AVOID HITTING THE LID ON THE FLOOR.

4. Remove the motor belt. Hold the belt, rotate the motor and pull the belt out. See Figure 22.
5. Hold the motor, remove the 2 bolts on the motor, using a wrench and carefully pull the motor out. See Figure 30.

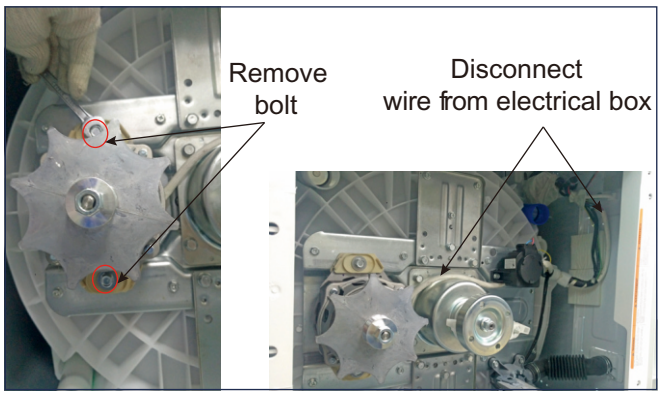


Figure 30

Removal and Replacement of Parts

Drain Pump

1. Turn off electrical supply.
2. Take out electrical box. See section Electrical Box. Disconnect the wire leading from the drain pump, on the main PCB.
3. Carefully place the washer on any side, to access the bottom side, as shown in Figure 21.

IMPORTANT	TAKE GOOD CARE WHEN PLACING THE WASHER SIDEWAYS TO AVOID SCRATCHES ON THE WASHER BODY. SEAL THE LID USING A TAPE TO AVOID HITTING THE LID ON THE FLOOR.

4. Remove the 3 screws mounting the drain pump using a Phillips-head screwdriver. See Figure 31.
5. Remove the hose connected to the drain pump using a nose plier. See Figure 31.

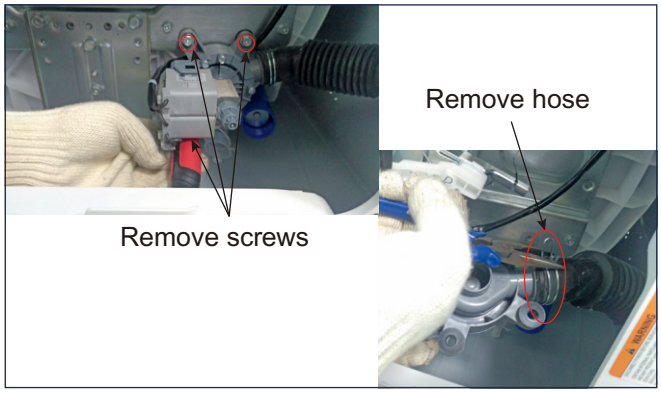


Figure 31

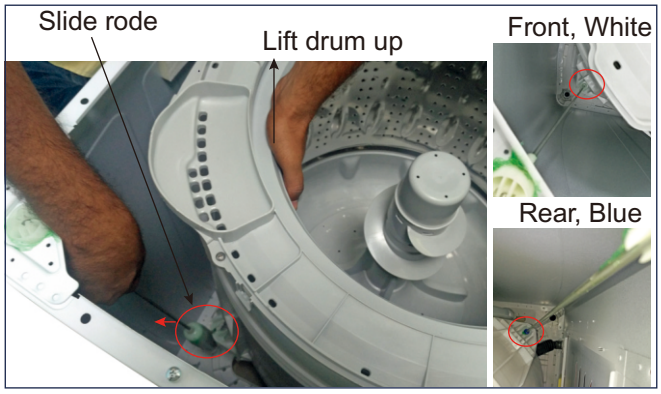


Figure 32

Suspension Rod and Spring Assembly

1. Turn off electrical supply.
2. Remove top cover assembly. See section Top Cover Assembly.
3. Lift the tub up and slide the suspension rod towards side to bring it off from the groove. See Figure 32.
4. Rotate and remove the suspension rod holder from the rod. See Figure 33.
5. Take the suspension rod and spring out from inside of the cabinet. The spring cover is blue for rear suspension and white for front suspension assemblies.

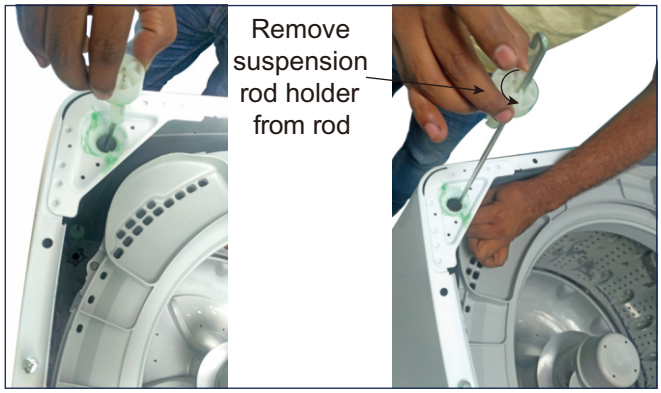
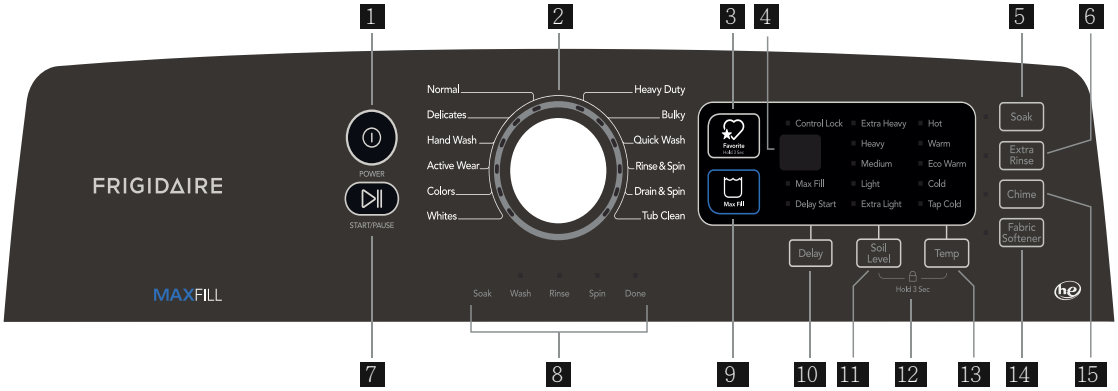


Figure 33

Function & Operation

Controls and Functions



1. Power Button

Press once to turn your washer on. Press again to turn your washer off. If the washer is left on for more than 10 minutes without Start/Pause button being pressed, the power will automatically turn off.

2. Cycle Selector

Select the appropriate cycle for the type of load. The cycle you select determines the tub pattern for the cycle.

3. Favorite

Press and hold for 3 seconds to remember your favorite washing cycle. Press once to load your favorite cycle setting.

4. Digital Display

The LED digital display will show your remaining time for cycle selected. The initial display will be “--” for some selected cycles. The LED will show selected delay time when setting the delay time.

5. Soak Button

Press once to select soak function. Press again to cancel selection. This function is especially for heavy soiled garments to remove stains more thoroughly by specifying additional time.

6. Extra Rinse Button

Press once to add an extra rinse into the washing program. Press again to cancel selection.

7. Start/Pause Button

Press once to start the program. Press again to pause the program. You cant change any setting except add a garment. Press again to restart the program.

8. Cycle Status Indicator Lights

The associated indicator light will be lighted when the washer is in particular washing program. For eg. the ‘Soak’ will light when the washer is operating in soak process. When the whole program is finished, the ‘Done’ light will flash.

9. Max Fill

Press once to set water level as max level.This function will be for some selected cycles.

10. Delay Button

Delay the start of any cycle for up to 24 hours in one-hour increments. Displayed hour indicates the time the wash will be started.

11. Soil Level Button

Press the button to select the soil level. Different soil level selection will result in different washing time.

12. Control Lock

Press the “Soil level” and “Temp” buttons simultaneous for over 3 seconds to activate this function. Press again for another 3 seconds to deactivate the function. All selection except the “Power” will be out of function.

13. Temp Button

Press the button to select the washing water temperature. The rinsing water temperature will always keep in Tap Cold.

a Hot - whites and heavily soiled, colorfast items

b Warm - colorfast items

c Eco Warm - moderately soiled, colorfast items; most wrinkle-free items

d Cold - brightly colored, very lightly soiled items

e Tap cold - cold water with no warm water added.

14. Fabric Softener

If you are using fabric softener, Press this button to set the dispenser to automatically add liquid fabric softener to the load at the correct time.

15. Chime

Press once to stop the buzzer sound. Press again to activate the sound.

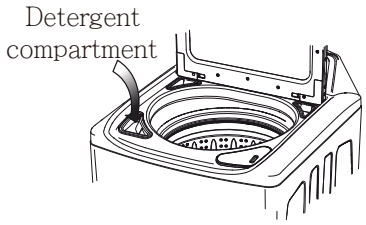
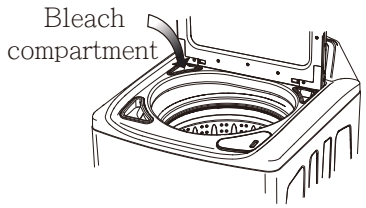
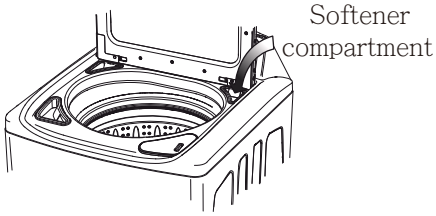
Function & Operation

Cycles and Settings

Cycle	Fabric Type	Soil Level	Temp	ECO	Delay	Soak	Favorite	Extra Rinse	Fabric Softener	Default Cycle Time (Min.)
Normal	Towels, shirts, sheets, jeans, mixed loads	Extra Heavy	Hot		●	●	●	●	●	40~78
		Heavy	Warm							
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							
Sports	Sportswear, sports dress		Hot	●	●	●	●	●	●	48~60.4
		Heavy	Warm							
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							
Whites	Dress shirts/pants/ wrinkle-free clothing / polycotton blend clothing/tablecloths		Hot	●	●	●	●	●	●	50~60.6
			Warm							
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							
Heavy Duty	Towels, shirts, sheets, jean, mixed loads	Extra Heavy	Hot	●	●	●	●	●	●	58~74
		Heavy	Warm							
		Medium	Eco warm							
		Light	Cold							
			Tap cold							
Tub Clean	Never use when laundry is in washer.	Extra Heavy	Hot		●					56
Drain & Spin	Towel, shirts, sheets, jean, mixed loads									13
Rinse& Spin	Towels, shirts, sheets, jean, mixed loads		Warm		●				●	22~25
			Eco warm							
			Cold							
			Tap cold							
Hand Wash	Lightly soiled and small loads (less than 9.8 lbs.)		Hot	●	●	●	●	●	●	47
			Warm							
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							
Delicate	Dress shirts/blouse, nylons sheer or lacy garments (less than 9.8 lbs.)		Hot	●	●	●	●	●	●	43
		Heavy	Warm							
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							
Bulky	Towel, shirts, sheets, jeans, mixed loads	Extra Heavy	Hot	●	●	●	●	●	●	77~95
		Heavy	Warm							
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							
Colors	Colorful loads, mixed loads	Heavy	Warm	●	●	●	●	●	●	48~60.4
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							
Quick	Lightly soiled and small loads (less than 9.8 lbs.)		Hot		●	●	●	●	●	38
			Warm							
		Medium	Eco warm							
		Light	Cold							
		Extra light	Tap cold							

Function & Operation

Dispenser Compartments

<table>
<tr>
<td> 
</td>
<td colspan="2">Loading the liquid or powder detergent compartment:
1. Pour the recommended amount of laundry detergent directly into the detergent compartment before starting your washer.
2. If you are using color-safe bleach, add it with the detergent to the detergent compartment.
When adding color-safe bleach with detergent, it is best if both laundry products are in the same liquid form.</td>
</tr>
<tr>
<td rowspan="2"> 
</td>
<td colspan="2">Loading the bleach compartment (liquid chlorine bleach only):
1. Add chlorine bleach into the bleach compartment.
2. As no water inlet to the bleach dispenser, the bleach will directly load into the tub when you pour in.
Avoid splashing or over-filling the compartment.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>Never pour undiluted liquid chlorine bleach directly onto the load or into the tub. It is a powerful chemical and can cause damage to the fabric, such as weakening of the fibers or color loss, if not used properly.
If you prefer to use color-safe, non-chlorine bleach, add it to the appropriate detergent compartment. DO NOT pour color-safe bleach into the bleach compartment.</td>
</tr>
<tr>
<td rowspan="2"> 
</td>
<td colspan="2">Loading the fabric softener compartment:
1. Pour the recommended amount of liquid fabric softener into the softener compartment.
2. The dispenser automatically releases liquid fabric softener at the proper time during the rinse cycle.
3. If using fabric softener on NORMAL cycles, make sure to press the FABRIC SOFTENER button on.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>Use the softener compartment ONLY for liquid fabric softeners. DO NOT use the Downy Ball in the fabric softener compartment with this washer. It will not add fabric softener at the appropriate time. Use the detergent compartment.
Do not use liquid fabric softener that is too sticky as it may not mix with the water sufficiently.</td>
</tr>
</table>

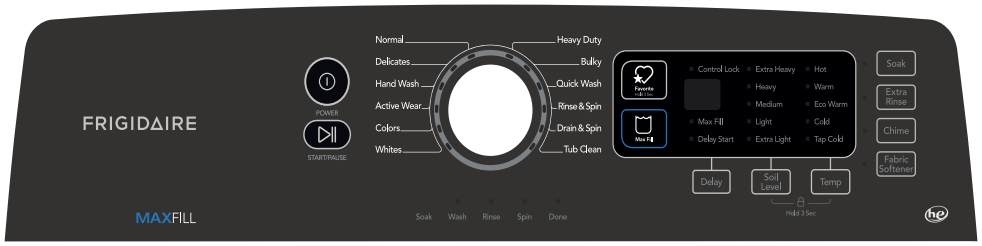
Troubleshooting

Access Test Mode

To enter the test mode, press Soak button, Extra Rinse button, and Power button simultaneously.

During tests, when the unit is powered ON, you can turn it OFF anytime by pressing the Power button.

NOTE	Before entering the test mode, empty the washer and make sure that there is no water left in the tub. Run a spin cycle or open the service panel from the front side of the unit to drain all the water. Then, make sure that all the parts are in their original position.



Test Modes

Before starting test mode, the water level sensor should be Installed. Otherwise, the unit will blow alarm and will stop running the test mode.

Test 1: Anytime you enter the test mode, all lights and digital display are ON and then flash with 6 beeps.

If any light is not ON, replace the control/display board.

If the display does not show 88, replace the board.

If no beep sound, replace the board.

Test 2: Washing test, to check the motor and rotation directions

Within 5 seconds after entering the test mode, press the Soil Level button to enter the Washing test.

The Normal cycle light and Wash procedure light are ON during the Washing test.

The time display shows 3, indicating that the remaining time is 3 minutes.

The motor and agitator rotate in two-directions in turn.

After 3 minutes, the test mode ends, with 6 beeps and Done light flashing. Once the test is done, all the lights are OFF and the lid is open.

Test 3: Spinning test, to check the clutch and pump

Within 5 seconds after entering the test mode, press the Temp button to enter the Spinning test.

The Normal cycle light and Spin procedure light are ON during the Spinning test.

The time display shows 3, indicating that the remaining time is 3 minutes.

The pump starts in 8 seconds. After 2 seconds, the unit starts Spinning test.

After 3 minutes, the test mode ends, with 6 beeps and Done light flashing. Once the test is done, all the lights are OFF and the lid is open.

Test 4: Inlet valve test, software version check

Within 5 seconds after entering the test mode, press the Fabric Softener button to enter the Inlet valve test.

The inlet valve test starts. All the valves are ON and water enters the unit. Check the detergent compartment, the fabric softener compartment, and the water filling basket to verify each valve.

Close the cold water faucet to see if the hot water valve is working or not.

At the same time, the digital display shows the software version. There are two software version displays:

For control/display board showing a “U-” followed by two digits indicating the software version.

For main PCB shows a “B-” followed by two digits indicating the software version.

After 1 minute, the test mode ends, with 6 beeps and Done light flashing. Once the test is done, all the lights are OFF and the lid is open.

Test 5: Auto-sensing check

Within 5 seconds after entering the test mode, press the Delay button to enter the auto-sensing test.

The unit checks the auto-sensing function in this test mode.

The digital display shows the test result if this function is right.

If there is no display on the digital display 3 seconds after the test, replace the main PCB.

The test mode ends with 6 beeps and Done light flashing. Once the test is done, all the lights are OFF and the lid is open.

Troubleshooting

Fault Codes and Corrective Actions

Fault Code	Possible Issue	Corrective Action
E1	Water not entering or slow water fill	Check if the lid is open. Turn both the faucets on fully. Check if the water pressure is in the required range. Straighten the water inlet hoses. Hose filter screens may be clogged. Disconnect hoses and clean the screens.
E2	Water not draining	Check the fuse or reset the circuit breaker. Straighten the drain hoses. Eliminate twisted hoses. If there is a drain restriction, call for service. Close the lid and press the Start/Pause button. For safety, the washer will not spin unless the lid is closed. Check the height of drain hose end.
E3	Lid is open.	Close the lid. The lid lock or PCB is failed. Refer to Troubleshooting.
E4	The unit is out of balance in spin operation.	Make sure that the washer is set on a level surface. If the surface is not level, adjust the washer's feet to level the appliance. Make sure that the washer is not placed on any other object. Make sure that the laundry load is balanced. During the spin cycle, if clothes are piled up on one side of the basket, it will stop due to out of balance condition. The unit will try to solve the problem automatically. If the washer cannot solve the problem in three attempts, Redistribute the clothes. If E4 continues after several different loads, there be an issue with suspension assembly or balance ring.
E5	Washer is not level	Make sure the unit is level and not leaned back. If the unit is not level, adjust the leveling legs to level unit. impact switch bot be pressed by tub. Refer to troubleshooting.
F2	PCB failure	Check wiring. If wiring test open, replace the wiring harness. If the wiring is correct, replace PCB.
F8	Water level sensor failure	Refer to Troubleshooting.
Fd	Lid lock failure	Refer to Troubleshooting.
C9	PCB failure	Check wiring. If wiring test open, replace the wiring harness. If the wiring is correct, replace PCB.
CL	The lid opened for more than 20 minutes with Control Lock function activated.	Power off the unit. Deactivate the Control Lock function. Call service center.

Troubleshooting

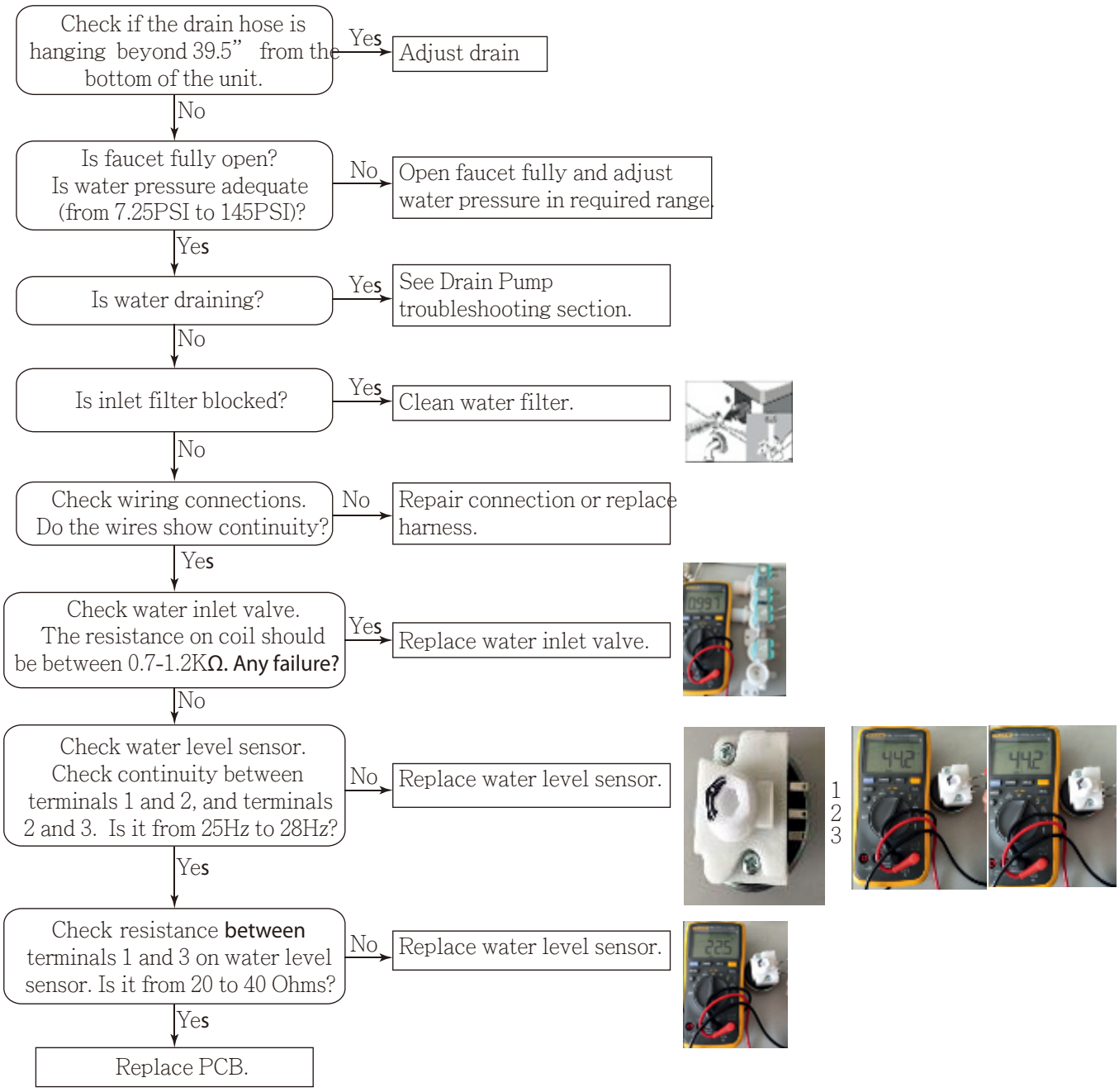
Troubleshooting

Description	Solution
The unit does not start.	Make sure the washer is plugged in. Make sure the lid is closed. Make sure the water source faucets are open. Make sure to press the Start/Pause button to start the washer. Make sure Control Lock is not activated. Check if a Delay Start is set. Before the washer starts to fill, it will make a series of clicking noises to check the lid lock and go a quick drain.
No water or not enough water. Detergent / Softener remains in its box after the wash cycle is completed.	Turn both faucets on fully. Check if the water pressure is in required range. Straighten the water inlet hoses. Disconnect the hoses and clean the screens. Hose filter screens may be clogged.
Vibrates or is too noisy	Make sure that the washer is set on a level surface. If the surface is not level, adjust the washer's feet to level the appliance. Make sure that the washer is not placed on any other object. Make sure the laundry load is balanced. During the spin cycle if clothes are piled to one side of thebasket, it will stop due to a out of balance condition. The unit will try to solve the problem automatically. If the washer can't solve the problem in three attempts, you should redistribute the clothes and make theme as even as possible manually.
Unit stops	Plug the power cord into a live electrical outlet. Check the fuse or reset the circuit breaker. Close the lid and press the Start/Pause button to start the washer. For safety, the washer will not spin unless the lid is closed. Before the washer starts to fill, it will make a series of clicking noises to check the lid lock and do a quick drain. There may be a pause or soak period in the cycle. Wait and it may start. Check the screens on the inlet hoses at the faucets for obstructions. Clean the screens periodically.

Description	Solution
Lid locked or not opening	Press the Start/Pause button to stop the washer. It may take a few moments for the lid lock to disengage.
Does not drain or spin	Straighten the drain hoses. Eliminate twisted hoses. If there is a drain restriction, call for service. Close the lid and press the Start/Pause button. For safety, the washer will not spin unless the lid is closed. Check the height of drain hose end.
Fills with wrong temperature water	Turn both faucets on fully. Make sure that the temperature selection is correct. Make sure that the hoses are connected to the correct faucets. Flush water lines. Disconnect the hoses and clean the screens. The hose filter screens may be clogged.
Load is too wet at the end of the cycle.	Use high efficiency detergent to reduce over-sudsing. The load is too small. Very small loads (one or two items) may cause imbalance and incomplete spin.
Leaks water	Make sure that all the hose connections are tight. Make sure that the end of the drain hose is correctly inserted and secured to the drainage system. Avoid overloading. Use high efficiency detergent to prevent over-sudsing.
Has excessive suds	Use high efficiency detergent to prevent over-sudsing. Reduce the detergent amount for soft water, small or lightly soiled loads. Non-HE detergent is NOT recommended.
Has an odor	Run a Tub Clean cycle to clean the tub and basket periodically. Check the detergent. Excessive suds collect in nooks and crannies and cause mold. Dry the interior of the washer after the total cycle has finished.

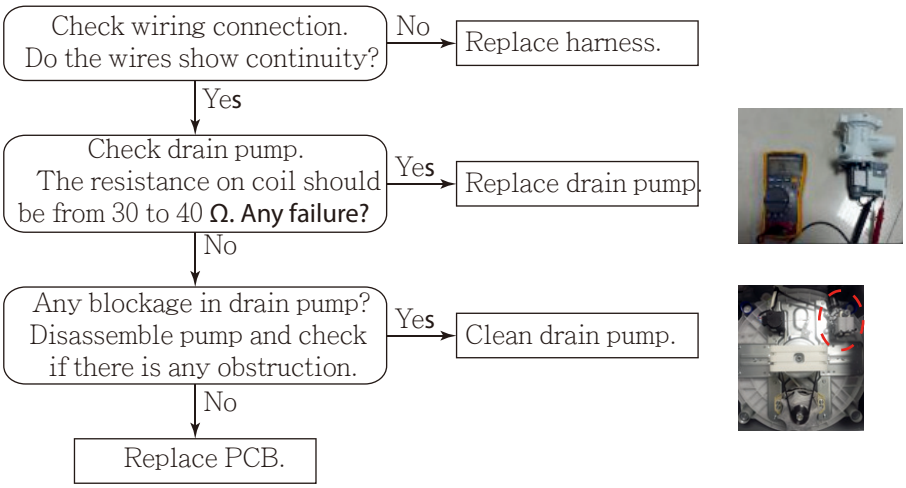
Troubleshooting

Water Fill Time Exceeds 60 Minutes (E1)

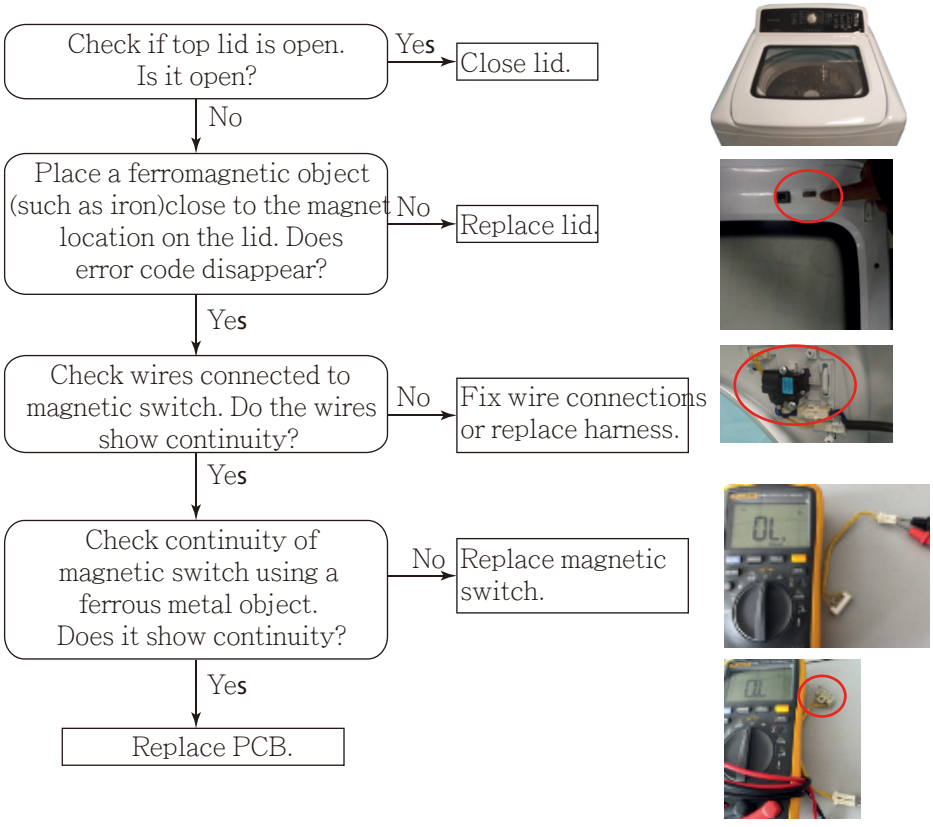


Troubleshooting

Water Drainage Time Exceeds 10 Minutes (E2)

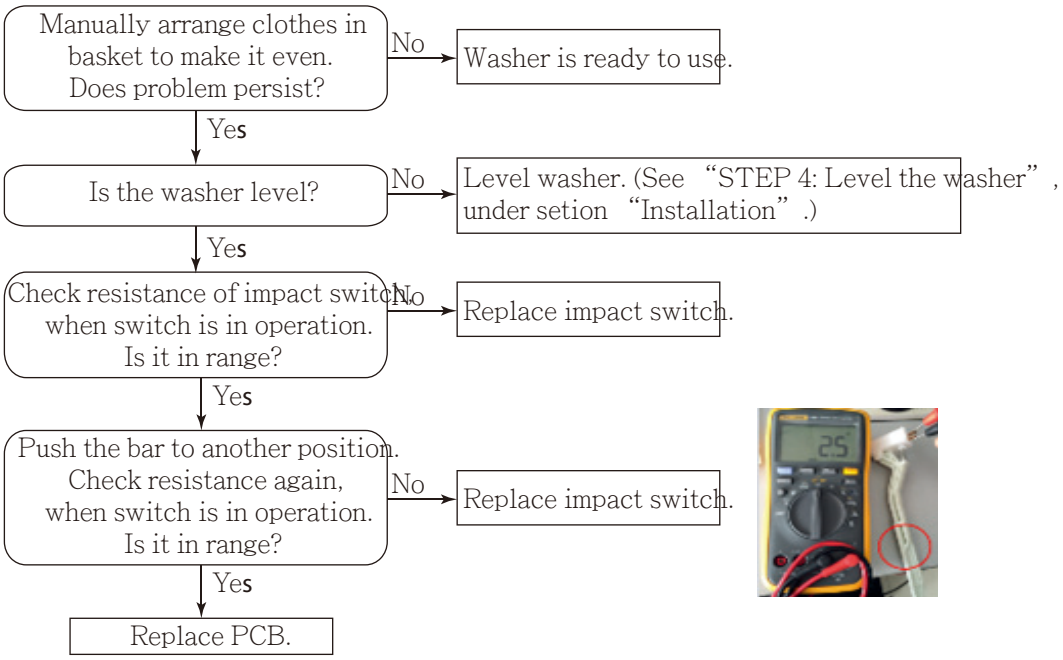


Lid Open (E3)

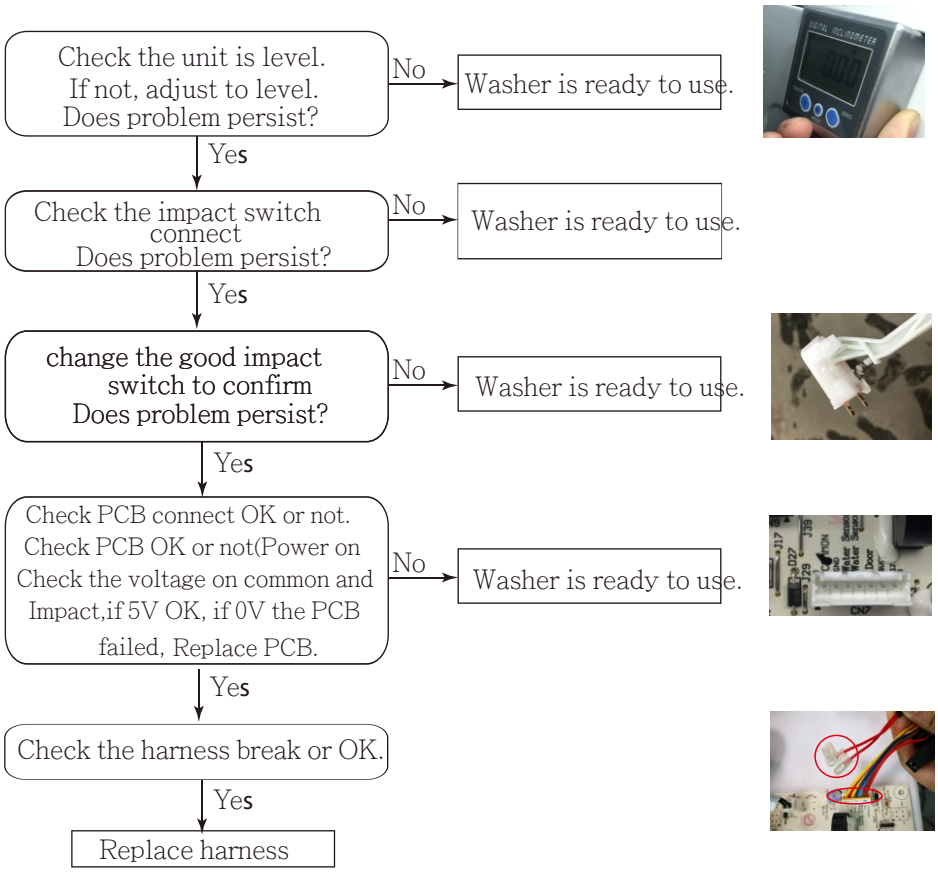


Troubleshooting

Out of Balance (E4)

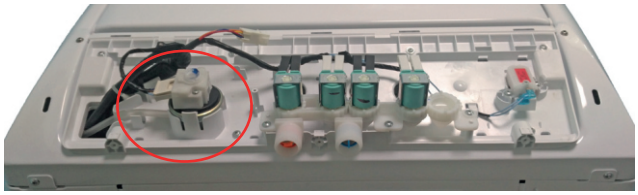


Impact Switch Is pressed by tub (E5)



Troubleshooting

Water Level Sensor Failure (F8)



Check water level sensor. Check continuity between terminals 1 and 2, and terminals 2 and 3. Is it from 40nF to 50nF?

No → Replace water level sensor.

Yes

Check resistance between terminals 1 and 3 on water level sensor. Is it from 20 to 40 Ohms?

No → Replace water level sensor.

Yes

Check wiring connection. Do the wires show continuity?

Yes → Replace PCB.

No

Replace harness.

Lid Lock Failure (Fd)

Check wiring connection. Check resistance between two blue lines of the lid lock. Is it from 50 to 80 Ohms?

No → Replace harness.

Yes

Check lid lock. Check resistance between two black lines.

Is it open-circuit while lock is in closed position?

Yes → Replace lid lock.

Is it short-circuit while lock is in open position?

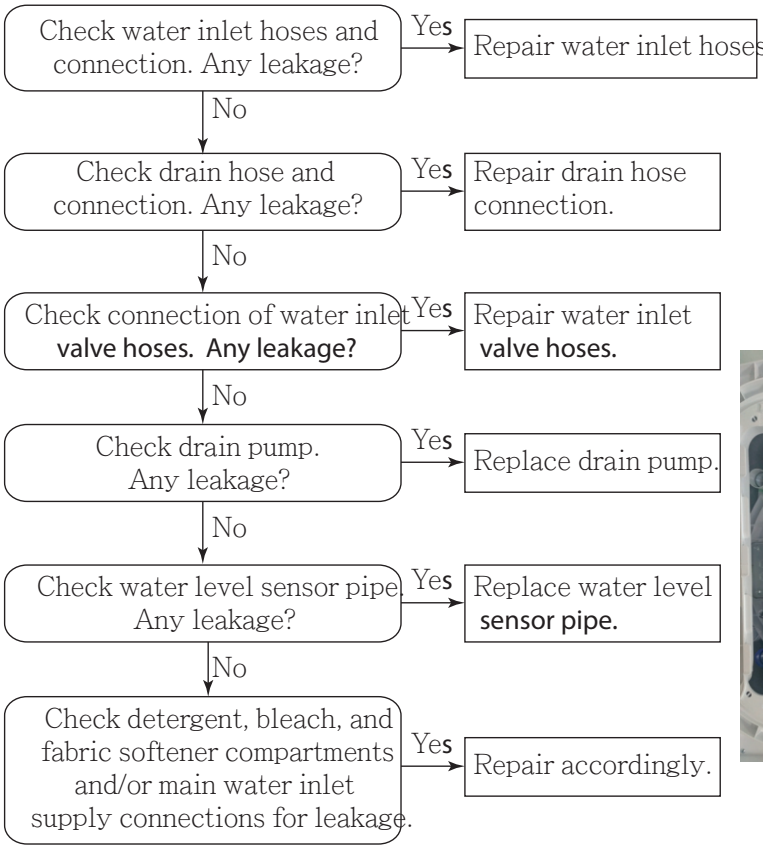
Yes → Replace lid lock.

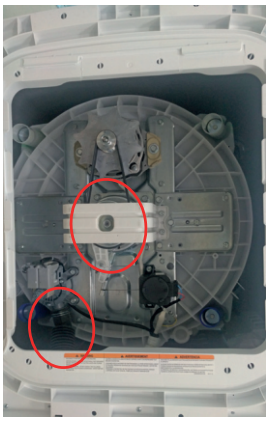
No

Replace PCB

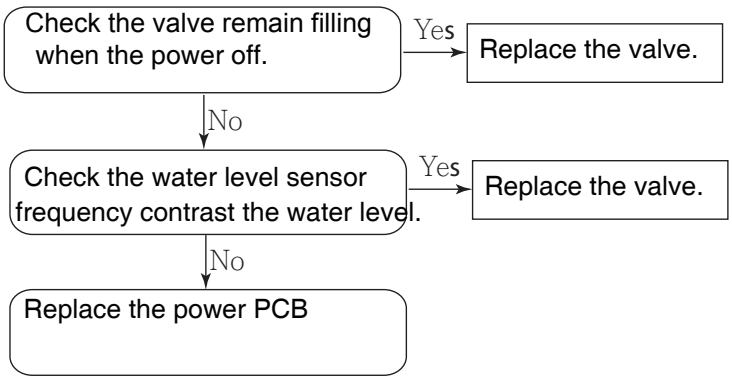
Troubleshooting

Water Leakage





Keep Filling



Water level sensor frequency combine water level

Frequency(KHz)	Level(inch)
21. 05	19.8±0.7
21.42	17.5±0.4
21. 90	15.7±0.5
22. 35	13.7±0.3
23. 20	11±0.5
23. 86	9±0.5
24. 35	7.9±0.5
24. 98	6.3±0.6
26.20	Empty
20.87	Max Fill

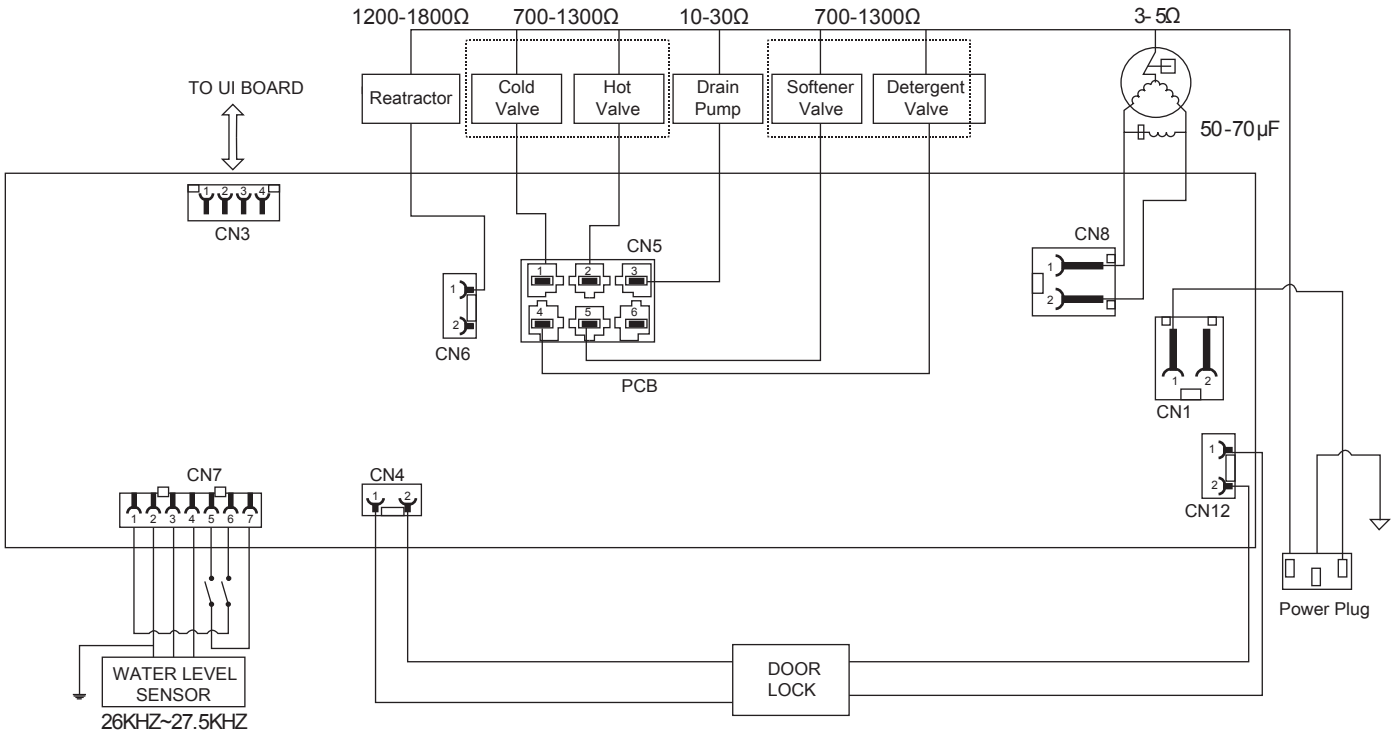
How to check the frequency on the screen:

1. hold Soak and Extra Rinse button, and press power to enter the test mode,
2. Press temp, the normal and spin signals on, the display will show the middle number of the current frequency.

e.g. 21.42KHz shows 14

Electrical Diagrams

Wiring Diagram



Water level sensor frequency combine water level

Frequency(KHz)	Level(inch)
21. 05	19.8±0.7
21.42	17.5±0.4
21. 90	15.7±0.5
22. 35	13.7±0.3
23. 20	11±0.5
23. 86	9±0.5
24. 35	7.9±0.5
24. 98	6.3±0.6
26.20	Empty
20.87	Max Fill

How to check the frequency on the screen:

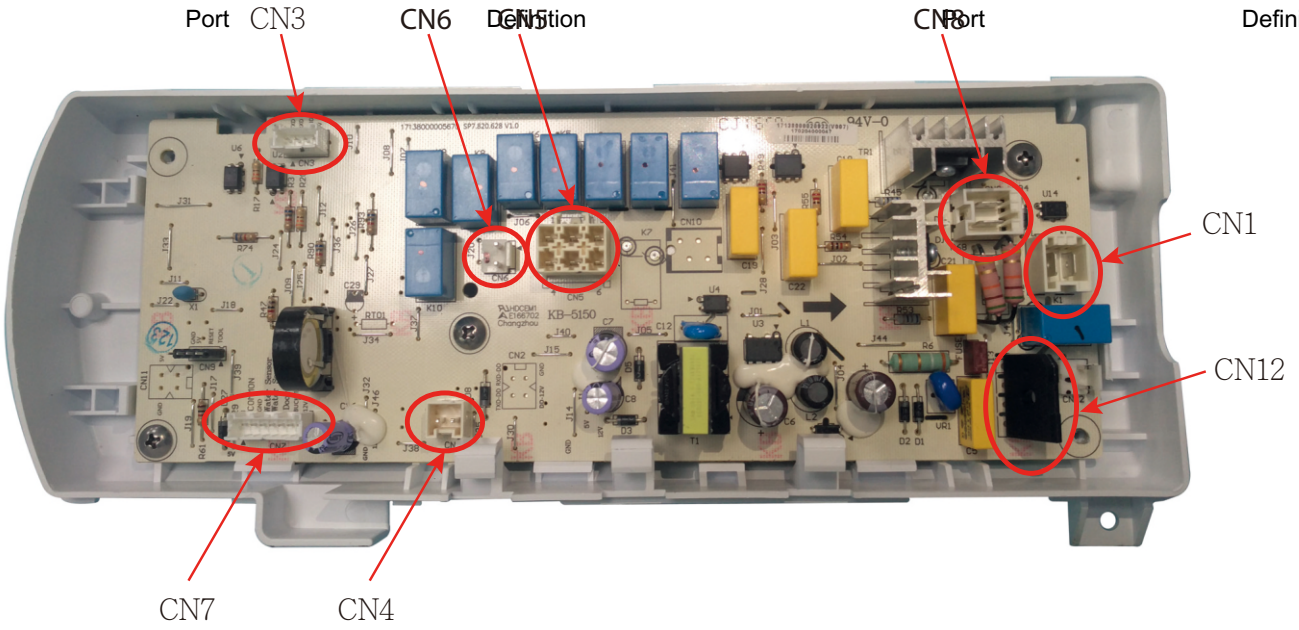
1. hold Soak and Extra Rinse button, and press power to enter the test mode,

2. Press temp, the normal and spin signals on, the display will show the middle number of the current frequency.

e.g. 21.42KHz shows 14

Electrical Diagrams

Terminals



Port Definitions

the previous page.

CN1	Pin 1: Live line Pin 2: Null line
CN3	PIN1: TXD PIN2: RXD PIN3: GND PIN4: +5V
CN4	Lid Lock status detection
CN5	PIN1: Cold valve PIN2: Hot valve PIN3: Drain pump PIN4: Softener valve PIN5: Detergent valve PIN6: NC

CN6	PIN1: Retractor PIN2: NC
CN7	PIN1: Common PIN2: GND PIN3: Water level sensor PIN4: Water level sensor PIN5: Magnetic switch PIN6: Impact Switch PIN7: 12V
CN8	PIN1: Negative rotation control PIN2: Positive rotation control
CN12	Lid lock control

Note: For detailed pin definitions, refer to Wiring Diagram in

FRIGIDAIRE

Model # FFTW4120SW
Publication # 5995693107
March 2018